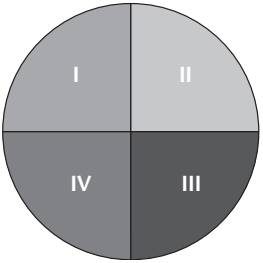


Elementary Education: Content Knowledge (0014)

<i>Test at a Glance</i>			
Test Name	Elementary Education: Content Knowledge		
Test Code	0014		
Time	2 hours		
Number of Questions	120		
Format	Multiple-choice questions, scientific or four-function calculator use permitted		
	Content Categories	Approximate Number of Questions	Approximate Percentage of Examination
	I. Language Arts II. Mathematics III. Social Studies IV. Science	30 30 30 30	25% 25% 25% 25%

About This Test

The Elementary Education: Content Knowledge test is designed for prospective teachers of children in primary through upper elementary school grades. The 120 multiple-choice questions focus on four major subject areas: language arts/reading, mathematics, social studies, and science. Test questions are arranged in the test book by subject area. Each of the four content areas constitutes 25 percent of the test.

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Topics Covered

Representative descriptions of each of the content areas covered by the test are provided below. Within each content area, the approximate percentage of examination questions is shown for each topic.

I. Language Arts

- Understanding Literature (30%)
 - narratives
 - nonfiction
 - poetry
 - resource and research material
- Text Structures and Organization for Reading and Writing (5%)
 - structure
 - patterns of organization
- Literacy Acquisition and Reading Instruction (30%)
 - foundations of literacy and reading instruction
 - children’s literature
 - strategies for word recognition
 - strategies for comprehension
- Language in Writing (25%)
 - components of language in writing including the elements of grammar and usage
 - syntax, sentence types
 - orthography and morphology
 - semantics
 - vocabulary in context
 - figurative language
 - social, cultural, and historical influences of language

II. Mathematics

- Communication Skills (10%)
 - processes of communication as reflected in the stages of writing development
 - stages of the writing process
 - spelling development
 - aspects of speaking and listening
- Critical Thinking
 - deductive reasoning
 - inductive reasoning
 - adaptive reasoning
 - problem analysis
- Number Sense and Numeration (31%)
 - meaning and use of numbers
 - the standard algorithms for the four basic operations
 - appropriate computation strategies and reasonableness of results
 - methods of mathematical investigation
 - number patterns
 - place value
 - equivalence
 - factors and multiples
 - ratio, proportion, percent
 - representations
 - calculator strategies
 - number lines
- Algebraic Concepts (23%)
 - algebraic methods and representations
 - associative, commutative, and distributive properties
 - additive and multiplicative inverses
 - function machines
 - the special properties of zero and one
 - equalities and inequalities, patterns, and algebraic formulas
- Informal Geometry and Measurement (23%)
 - pure and real-world properties and relationships in figures and shapes in two and three dimensions
 - Pythagorean theorem
 - transformations
 - geometric models
 - nets
 - standard units of measurement
 - coordinate graphing
 - perimeter, area, volume
 - rates
 - angles
 - money, temperature, time
- Data Organization and Interpretation (23%)
 - visual displays of quantitative information
 - simple probability
 - outcomes
 - events
 - sample spaces
 - counting techniques
 - tree diagrams
 - combinations
 - permutations
 - mean, median, mode

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III. Social Studies

- Geography (15%)
 - the world in spatial terms
 - places and regions
 - physical and human systems
 - environment and society
 - uses of geography
- World History (10%)
 - prehistory and early civilizations
 - classical civilizations
 - the rise of non-European civilizations
 - cross-cultural comparisons
 - the rise and expansion of Europe
 - twentieth-century developments and transformations
- United States History (25%)
 - European exploration and colonization
 - the American Revolution and the founding of the nation
 - growth and expansion of the Republic
 - twentieth-century developments and transformations
- Political Science (20%)
 - the nature and purpose of government
 - the forms of government
 - the United States Constitution
 - the rights and responsibilities of citizens
 - state and local government

- Anthropology, Sociology, and Psychology (15%)
 - kinship patterns, social institutions, social stratification, and cultural changes
 - socialization and acculturation, ethnic groups and societal change, and stereotypes and biases
 - human development and growth, human behavior, and gender roles and differences
- Economics (15%)
 - key terms and major concepts of the economic market
 - the individual and the market
 - economics' effect on population and resources
 - government's role in economics and economics' impact on government
 - economic systems
 - impact of technological developments on the economy
 - international economics

IV. Science

- Earth Science (25%)
 - the structure of the earth system
 - processes of the earth system
 - Earth history
 - Earth and universe
- Life Science (25%)
 - the structure and function of living systems
 - reproduction and heredity
 - regulation and behavior
 - biological evolution
 - interdependence of organisms
- Physical Science (25%)
 - the structure and properties of matter
 - energy
 - interactions of energy and matter
- Science as Inquiry (5%)
 - appropriate questioning techniques
 - planning and conducting simple investigations
 - gathering data with the tools of science to organize and use data to draw reasonable conclusions
- Science in Personal and Social Perspectives (10%)
 - personal health
 - Science, Technology and Society
- History and the Nature of Science (5%)
 - science as a human endeavor
 - historical perspectives in science
 - science as a process
 - science as a career
- Unifying Processes (5%)
 - systems, order, and organization
 - structure and function models
 - changes over time
 - cycles
 - equilibrium

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Sample Test Questions

The sample questions that follow illustrate the kinds of questions in 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 statements below is followed by four suggested answers or completions. Select the one that is best.

I. Language Arts

Questions 1–2 refer to the following poem:

Leave me, O love which reaches but to dust;
And thou, my mind, aspire to higher things;
Grow rich in that which never taketh rust,
Whatever fades but fading pleasure brings.

1. In line 1 “dust” serves as a metaphor for
 - (A) ignorance
 - (B) death
 - (C) loneliness
 - (D) confusion
2. The lines above comment on the speaker’s desire to
 - (A) seek out immediate pleasures
 - (B) enrich himself
 - (C) reject that which is transitory
 - (D) revive the past

-
3. According to research, which of the following is the single most important home-based activity for preschool children in building the knowledge required for children’s eventual success in reading?
 - (A) Children’s memorizing nursery rhymes
 - (B) Families’ talking about school
 - (C) Parents’ reading aloud to children
 - (D) Parents’ teaching the alphabet

4. 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

5. Manuel is the tallest of the two boys.
Which of the following statements about the above sentence is true?

- (A) The sentence is written correctly.
- (B) The subject and verb do not agree.
- (C) The word “boys” should be possessive.
- (D) “Tallest” modifies Manuel incorrectly.

6. All of the following are descriptive of listening behavior EXCEPT

- (A) Careful listening can lead to anticipation of a speaker’s actions.
- (B) People learn to listen selectively and can even shut out what is undesirable.
- (C) Listening comprises at least one-half of all communication.
- (D) The ability to be a good listener comes naturally and without training.

II. Mathematics

7. Riding on a school bus are 20 students in 9th grade, 10 in 10th grade, 9 in 11th grade, and 7 in 12th grade. Approximately what percent of the students on the bus are in 9th grade?

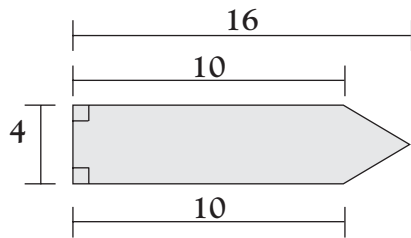
- (A) 23%
- (B) 43%
- (C) 46%
- (D) 76%

8. Which of the following is equal to 8^4 ?

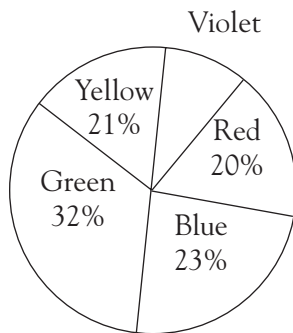
- (A) 4,032
- (B) 4,064
- (C) 4,096
- (D) 4,128

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9. In the formula $x = 10y$, if y is positive and the value of y is multiplied by 2, then the value of x is
- (A) divided by 10
 - (B) multiplied by 10
 - (C) halved
 - (D) doubled



10. The area of the shaded region above is
- (A) 30
 - (B) 52
 - (C) 64
 - (D) 116

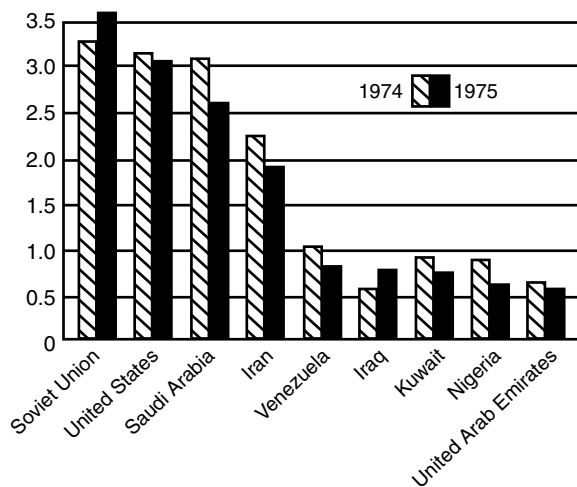


11. The circle graph above represents the percent of colored gems in a collection. If the collection has a total of 50 gems, how many gems are violet?
- (A) 2
 - (B) 3
 - (C) 4
 - (D) 5

III. Social Studies

12. Mount Rainier is located in which of the following mountain ranges?
- (A) The Cascades
 - (B) The Rockies
 - (C) The Appalachians
 - (D) The Alps
13. Which of the following is believed to have occurred during the last Ice Age as a result of a land bridge created between what are now Siberia and Alaska?
- (A) The invention of new technologies for sheltering humans against sustained cold
 - (B) The blockage of important trade routes
 - (C) The establishment of human settlements in North America
 - (D) Widespread famine
14. Since the end of the United States Civil War in 1865, all of the following have been major objectives of groups seeking civil rights for Black people EXCEPT
- (A) passage of affirmative action legislation
 - (B) desegregation of public educational facilities
 - (C) creation of a third party in national politics
 - (D) passage of antilynching laws
15. What percent of the seats in the United States House of Representatives are up for election every two years?
- (A) 33%
 - (B) 50%
 - (C) 66%
 - (D) 100%
16. Historically India's society has been organized into hierarchical groups known as
- (A) tribes
 - (B) castes
 - (C) clans
 - (D) denominations

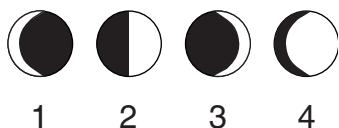
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17. According to the graph above, how many of the countries shown produced more crude oil in 1975 than 1974?
- (A) 1
(B) 2
(C) 3
(D) 4

IV. Science

18. Which of the following geological processes adds new rock to the surface of the Earth?
- (A) Volcanic activity
(B) Glacial activity
(C) Soil erosion
(D) Weathering



19. Which of the diagrams above best depicts the Moon as viewed from Earth at the first quarter of the lunar cycle?
- (A) 1
(B) 2
(C) 3
(D) 4

20. Which of the following is NOT a way in which mammals keep themselves warm in winter?
- (A) Shivering
(B) Perspiring
(C) Fluffing out coat hair
(D) Contracting certain blood vessels
21. Which of the following would be observed in a vacuum if a feather and two stones of different weights were dropped simultaneously from a height of ten feet?
- (A) Both stones would hit the ground at the same time, but before the feather.
(B) The heavier stone would hit the ground first.
(C) The lighter stone would hit the ground first.
(D) All three objects would hit the ground at the same time.
22. Which of the following laboratory instruments would be most appropriate to use in determining the volume of a large block of wood of unknown density?
- (A) A metric ruler
(B) A triple-beam balance
(C) A 200 mL volumetric flask
(D) A micrometer
23. Which of the following best describes a scientific hypothesis?
- (A) It ensures that successful results will be obtained from an experiment.
(B) It must be accepted as true by the scientific community.
(C) It is a testable proposal that may lead to experimentation.
(D) It must be formulated by a renowned scientist.
24. Which of the following is the broadest category in the biological taxonomy?
- (A) Kingdom
(B) Order
(C) Genus
(D) Species

Answers

1. The correct answer is B. In literature the word “dust” is often associated with death because life forms decay into soil after death. A metaphor is figurative language that connects one image or idea with another.
2. The correct answer is C. The word “transitory” refers to change, and the speaker mentions a desire to reject things that turn to dust, acquire dust, and start to fade. These are all types of change.
3. The correct answer is C. Research shows that parents’ reading aloud to children during the preschool years is the most influential home literacy activity and is especially beneficial when children are active participants.
4. The correct answer is D. The entries in outlines generally present a main idea followed by a hierarchical arrangement of subordinate ideas.
5. The correct answer is D. “Tallest” is in the super-lative degree which is used when comparing more than two things. “Taller” is the correct word to use since it is in the comparative degree.
6. The correct answer is D. Authorities agree that effective listening is not a natural ability but requires study and practice.
7. The correct answer is B. Percent refers to “how many out of one hundred” or, in decimal form, “how many hundredths.” To find a percent, divide the group (20) by the total (46) and round the decimal to the hundredths place (0.43). This is 43 hundredths or $43/100$ or 43%.
8. The correct answer is C. The exponent 4 tells how many times to multiply the base 8 by itself. In this case, $8^4 = 8 \times 8 \times 8 \times 8$ or 4,096.
9. The correct answer is D. This can be shown algebraically as follows. Given that $10y = x$, then 10 times $2y$ equals $20y$, which is 2 times x . Thus, when the value of y is doubled, the value of x is doubled.
10. The correct answer is B. The rectangle has length 10 and width 4; so its area is 40. The triangle can be thought of as having a base 4 and an altitude of 6. Its area is $1/2 \times 4 \times 6$, or 12. The combined area is therefore $40 + 12$, or 52.
11. The correct answer is A. A circle graph of percents represents 100% of a group. So, to find the percent of violet gems, subtract the total percent of the other colors, 96%, from 100% to get 4%. Since 4% or $4/100$ of the gems are violet, 2 out of the total of 50 gems are violet. This can be determined by multiplying 50 by 4% or 0.04, or by setting up equivalent fractions: $4/100 = 2/50$.
12. The correct answer is A. Mount Rainier is located in the state of Washington. The greatest single-peak glacial system in the United States radiates from this dormant volcano in the Cascade Mountains.
13. The correct answer is C. During the Ice Age, the level of the water in the Pacific Ocean lowered, exposing a land bridge across the Bering Strait. The cold northern climate encouraged many people to migrate throughout the continent in search of better living conditions.
14. The correct answer is C. The creation of a third party in national politics would be a political action, not one of civil rights.

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15. The correct answer is D. Article 1 Section 2 of the Constitution of the United States says, “The House of Representatives shall be composed of Members chosen every second Year by the People... .” All members of the House are elected at the same time every two years.

16. The correct answer is B. In the fifteenth century AD, explorers from Portugal encountered the social system of India and called these groups castes. As time went on, the four basic castes gradually grew more complex, with hundreds of subdivisions.

17. The correct answer is B. Since the numbers on the left side of the graph increase from bottom to top, it is a matter of determining how many shaded bars are higher than their corresponding striped bars.

18. The correct answer is A. Volcanic activity is the only process by which material from inside the Earth is brought to the surface. The other processes are means of wearing down Earth’s surface.

19. The correct answer is B. At the first lunar quarter the sun, Earth, and moon form a right triangle, with Earth at the right angle, so that the half of the moon facing Earth appears half lighted and half dark.

20. The correct answer is B. Perspiring is an adaptation that allows mammals to lose heat. When the body temperature rises, sweat is produced. As the water in the sweat evaporates, the skin is cooled, not warmed.

21. The correct answer is D. In a vacuum, the only external force acting on each of the objects would be the gravitational force of the Earth. This gravitational force is equal to Mg , where M is the object’s mass and g is the constant acceleration of gravity (9.8 meters per second squared). According to Newton’s second law, the acceleration a of an object times its mass is equal to the external force acting on it. For this situation, Newton’s second law gives $Ma = Mg$, or $a = g$. Thus, in a vacuum all objects fall freely with the same constant acceleration g regardless of their mass.

22. The correct answer is A. To find the volume of a large rectangular block of wood, first use the metric ruler to find the length, width, and height of the block. Then use the formula for the volume of a rectangular solid—length \times width \times height—to determine the volume.

23. The correct answer is C. A hypothesis is a best guess or a possible explanation of a scientific problem. Scientific experimentation can either support or refute the hypothesis.

24. The correct answer is A. When putting living things into a biological classification scheme, the broadest category is kingdom, followed by phylum, class, order, family, genus, and finally species.