Oklahoma Modified Alternate Assessment Program (OMAAP)

Biology I

PARENT, STUDENT, AND TEACHER GUIDE

2014-15 & 2015-16

Oklahoma State Department of Education

Acknowledgment

Photograph of student using a microscope by Richard Hutchings/Digital Light, copyright © by McGraw-Hill Education.

Testing Dates

Please reference the Oklahoma State Department of Education Web site for the most current testing dates:

- http://ok.gov/sde/assessment-administrator-resources-administrators

The Oklahoma Modified Alternate Assessment Program (OMAAP) is only available for repeat testers who have a previous OMAAP score in the same content area.

STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
STATE OF OKLAHOMA

Dear Parent/Guardian and Student:

Soon students will be participating in the Oklahoma Modified Alternate Assessment Program. These tests are designed to measure knowledge in Mathematics, Reading, Science, and History.

You will receive a report on your child's performance on the tests. This report will indicate your child's areas of strength as well as areas needing improvement.

This guide provides practice questions, objectives covered in the tests, and a list of test-taking tips. Discuss these materials with your child ahead of time to encourage test preparedness. During the test week, it is very important for students to get plenty of sleep, eat a good breakfast, and arrive at school on time.

If you have any questions about the Oklahoma Modified Alternate Assessment Program, please contact your local school or the State Department of Education.

Sincerely,
Your State Superintendent of
Public Instruction

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The Oklahoma Modified Alternate Assessment Program

The Governor, state legislators, and other Oklahoma elected officials have committed themselves to ensuring that all Oklahoma students receive the opportunity to learn the skills required to succeed in school and in the workplace. To achieve this goal, schools must prepare every Oklahoma student for colleges, universities, and careers that require new and different skills.

Under the direction of the Legislature, Oklahoma teachers, parents, and community leaders met to agree upon the skills that students are expected to master by the end of each grade. The results of their efforts, Oklahoma Academic Standards, provide the basis for Oklahoma's core curriculum.

In addition, the Legislature established the criterion-referenced test component of the Oklahoma School Testing Program (OSTP) to measure students' progress in mastering the Oklahoma Academic Standards. Tests have been developed by national test publishers that specifically measure the Oklahoma Academic Standards at the end-of-instruction levels. Teachers from throughout Oklahoma have been involved in the review, revision, and approval of the questions that are included in the tests.

The Oklahoma Modified Alternate Assessment Program (OMAAP) is a criterion-referenced testing program which compares a student's performance with performance standards established by the State Board of Education. The performance standards are based upon recommendations from groups of Oklahoma educators who evaluated the test and recommended the performance standards for the different levels of performance for each test. The Oklahoma Performance Index, or OPI, is a scaled score earned by a student that places the student into one of the four performance levels (Advanced, Satisfactory, Limited Knowledge, Unsatisfactory).

The Modified assessments have been developed for students with disabilities who can make significant progress but may not reach grade-level achievement standards within the same time frame as other students, even after receiving the best-designed instructional interventions from highly qualified teachers. Beginning in 2013–2014, the Modified assessments are intended for those students who are repeat testers with a previous score in the same content area. The purpose of this test is to show proficiency in order to meet graduation requirements only.

The Modified assessments provide information about subject-level student academic performance in Reading, Mathematics, Science, and History in relation to the Oklahoma Academic Standards based on modified achievement standards. End-of-Instruction assessments are available in the following subjects:

English II Algebra I Biology I U.S. History

These assessments provide informative data that educators can use to make instructional decisions, based on student performance in relation to the Oklahoma Academic Standards.

Achieving Classroom Excellence (ACE) End-of-Instruction Legislation

The state statute reads as follows: "Each student who completes the instruction for English II, English III, United States History, Biology I, Algebra I, Geometry, and Algebra II at the secondary level shall complete an end-of-instruction test, to measure for attainment in the appropriate state academic content standards in order to graduate from a public high school with a standard diploma." All students shall take the tests prior to graduation, unless otherwise exempt by law.

"Beginning with students entering the ninth grade in the 2008–2009 school year, every student shall demonstrate mastery of the state academic content standards in the following subject areas in order to graduate from a public high school with a standard diploma: Algebra I, English II, and two of the following five: Algebra II, Biology I, English III, Geometry, and United States History."

To demonstrate mastery, the student shall attain at least a satisfactory score on the end-of-instruction criteria. Students who do not attain at least a satisfactory score on any end-of-instruction test shall be provided remediation and the opportunity to retake until at least a proficient score is attained on the tests of Algebra I, English II, and two of the following five: Algebra II, Biology I, English III, Geometry, and United States History, or will be allowed to substitute approved alternate tests in order to meet this requirement.

Students who do not meet these requirements may graduate from a public high school with a standard diploma by demonstrating mastery of state academic content standards by alternative methods as approved by the State Board of Education.

Students who score ten percent (10%) above the cut scores approved by the State Board of Education for the ACT, SAT, ACT PLAN, or PSAT alternate tests shall be deemed to have satisfactorily demonstrated mastery of the state academic content standards in the subject areas for which alternative tests have been approved and shall be exempt from taking the EOI tests in the subject areas of Algebra II, English III, Geometry, or U.S. History.

Students who have a score that is equal to or above the cut scores approved by the State Board of Education for the Advanced Placement course exams, ACT Workkeys, College-Level Examination Program (CLEP), or International Baccalaureate (IB) alternate tests shall be deemed to have satisfactorily demonstrated mastery of the state academic content standards in the subject areas for which alternative tests have been approved and shall be exempt from taking the EOI tests in the subject areas of Algebra II, English III, Geometry, or U.S. History. The State Board of Education shall adopt rules providing for implementation of the use of these alternate tests.

Overview of the OMAAP Tests

OMAAP tests were built from previously administered items contained in the OCCT operational test forms.

Items from the OCCT were modified and reviewed by committees of educators to be used on the Modified assessments. The following table illustrates the modification rules that are used for each subject area.

Subject Area	Modification Rules and Guidelines
Universal	• Minimize the number of questions on the page (limit to 2 or 3). • Provide only three answer options instead of four. • Highlight the main points in the question or passage by underlining and using bold font. • Avoid questions that require students to select the better/best answer. • Be consistent in wording of directions across grades and subjects. • Minimize the use of pronouns and prepositional phrases. • Avoid the use of multiple-meaning words and words that can function as more than one part of speech. • Enlarge art when possible. • Simplify art when possible (i.e. remove unnecessary labels, use less gray scale, use thicker lines when outlining, etc.). • Box informational text in an item. • Bullet information when possible (e.g. bullet detailed information or processes). • Reduce reading load of stem, stimuli, and answer options when possible. • Revise answer options to address parallelism and minimize outliers.
English II	• Break passages into smaller portions. • Place the questions that pertain to the smaller portion underneath or on a page facing that section. • Use footnotes for grades 6–8 and English II. • Put items in order of appearance in the passage. • Delete extraneous information including irrelevant material and unnecessary words in items or graphics (e.g. remove “most likely”). • Delete one part of a compound answer choice when possible. • Change passive voice to active voice when appropriate. • Eliminate answer choices that give students the option of making no changes to the item. • Direct student attention to graphics. • Simplify visual complexity of graphics.
Writing Prompt/ English II	• Simplify the prompt. • Simplify the Writer’s Checklist. • Use a 3-point holistic writing rubric.

Subject Area	Modification Rules and Guidelines
Algebra I	• Unless required by standard, avoid items with negative and positive answer choices that use the same number. • Place any items with coordinate grids on one page. • Be consistent with qualifiers in the stem and answer choices. • Avoid questions that use “best” or “closest.” • Avoid complicated art. • List coordinate grids in answer options vertically with plenty of space between the answer options to make the grids more accessible to the visually impaired (however, avoid spanning item over two pages). • Simplify reading load, including vocabulary, when possible. • Eliminate stimuli sets. • Delete one part of a compound answer choice when possible. • Delete griddable items, negative items, and items that cannot be modified based on guidelines. • Delete extraneous information including irrelevant material and unnecessary words in items or graphics. • Simplify complex sentence structure and vocabulary in item and answer choices without eliminating math vocabulary. • Change passive voice to active voice when appropriate. • Add precise language to provide additional context for clarification. • Use consistent language within an item in order to focus student attention on what is being asked. • Revise text as necessary to maintain the authenticity and logic of the item due to modifications. • Use bullets to clearly organize complex items into smaller, meaningful parts. • Direct student attention to graphics. • Simplify visual complexity of graphics. • Provide new text and/or reorganize existing text within the question to explain or clarify the graphic. • Provide additional graphics to support text, emphasize ideas, and facilitate comprehension. • Reduce the number of variables and simplify digits in items when appropriate. • Limit the number of steps and/or operations in multi-step problems. • Provide appropriate formula and/or conversion near the item. • Provide explicit directions to explain a process such as measuring (as long as it does not impact reading load).

Subject Area	Modification Rules and Guidelines
Biology I	• Reduce the amount of reading. • Avoid complicated art. • Simplify tables and charts by removing irrelevant rows or columns. • Box formulas to make them stand out. • Make sure answer options align to content and process. • Simplify reading load, including vocabulary, when possible. • Eliminate stimuli sets. • Delete cluster items, negative items, and items that cannot be modified based on guidelines. • Delete extraneous information including irrelevant material and unnecessary words in items or graphics. • Simplify complex sentence structure and vocabulary in item and answer choices without eliminating science vocabulary. • Change passive voice to active voice when appropriate. • Change items from an open-ended statement to a direct question or vice versa, as necessary, for clarification. • Add precise language to provide additional context for clarification. • Use consistent language within an item in order to focus student attention on what is being asked. • Revise text as necessary to maintain the authenticity and logic of the item due to modifications. • Use bullets to clearly organize complex items into smaller, meaningful parts. • Direct student attention to graphics. • Simplify visual complexity of graphics. • Provide new text and/or reorganize existing text within the question to explain or clarify the graphic; science content must remain accurate. • Provide additional graphics to support text, emphasize ideas, and facilitate comprehension. • Reduce the number of variables and simplify digits in items when appropriate. • Limit the number of steps and/or operations in multi-step problems. • Provide the appropriate formula and/or conversion near the item. • For Biology I, avoid using items that reference x and y axis on a graph.

Subject Area	Modification Rules and Guidelines
U.S. History	• Reduce the amount of reading. • Avoid complicated art. • Simplify tables and charts by removing irrelevant rows or columns. • Simplify maps. • Box formulas to make them stand out. • Delete one part of a compound answer choice when possible. • Delete extraneous information including irrelevant material and unnecessary words in items or graphics. • Simplify complex sentence structure and vocabulary in item and answer choices without eliminating social studies vocabulary. • Change passive voice to active voice when appropriate. • Change items from an open-ended statement ending to a direct question or vice versa, as necessary, for clarification. • Add precise language to provide additional context for clarification. • Use consistent language within an item in order to focus student attention on what is being asked. • Revise text as necessary to maintain the authenticity and logic of the item due to modifications. • Use bullets to clearly organize complex items into smaller, meaningful parts. • Provide definition of non-tested vocabulary in a text box near item and bold the defined term in the item or provide definition in brackets behind the word. • Direct student attention to graphics. • Simplify visual complexity of graphics. • Provide additional graphics to support text, emphasize ideas, and facilitate comprehension. • Provide new text and/or reorganize existing text within the question to explain or clarify the graphic. • Delete items that cannot be modified based on guidelines.

Test-Taking Tips

The following tips provide effective strategies for taking the Oklahoma Modified Alternate Assessment. Test-taking skills cannot replace studying based on the Oklahoma Academic Standards, which serve as the foundation for the tests.

General Test-Taking Tips:

DO... read this guide carefully and review the sample items.

DO... make sure you understand all test directions. If you are uncertain about any of the directions, raise your hand to ask questions before testing has started.

DON'T... wait until the last minute to study for the test. These tests cover a lot of material, and you cannot learn it all in a short amount of time.

DON'T... worry about the tests. Students who are calm and sure of themselves do better on tests.

Tips for the Multiple-Choice Tests:

DO... read each question and every answer choice carefully. Choose the best answer for each question.

DO... check your work if you finish your test early. Use the extra time to answer any questions that you skipped.

DO... read the reading selections for the English II test carefully.

DO... remember that if you cannot finish the test within the time allotted, you will be given additional time to complete the test.

DO... mark all your answers in the test book.

DON'T... allow any stray pencil marks to go inside of the question boxes from working problems or making notes in your test book.

DON'T... spend too much time on any one question. If a question takes too long to answer, skip it and answer the other questions. You can return to any skipped questions after you have finished all other questions.

The Biology I Test

This multiple-choice test is administered in one section in a paper/pencil test booklet. Testing time is approximately 60 minutes with up to an additional 20 minutes for testing directions. The test is not strictly timed. Testing sessions for students who need more time can be extended. However, some studies have shown that more than one hour of additional time can contribute to a decrease in student scores. This additional time is available as an immediate extension of the testing session; it is not available as a separate session at another time.

Students who finish a test early should make sure their work is complete and are encouraged to check and verify their answers prior to closing their test books. Once a test has been completed, students will not be allowed to reopen their test books.

Approved calculators may be used by all students on the Biology I End-of-Instruction Assessment. See Calculator Policy on page 12.

The following sections of this guide:

- list the Oklahoma Academic Standards that are covered on the Biology I End-of-Instruction test.
- present the blueprint.
- present a sample test item.
- present directions and a sample test.

Oklahoma School Testing Program
Oklahoma Core Curriculum Tests

End-of-Instruction (EOI) Calculator Policy

Revised 8/27/09

Purpose

- The items on the ACE Algebra I, ACE Geometry, ACE Algebra II, and ACE Biology I assessments are designed so that calculators are not required to solve any of the problems. All tasks can be solved without the use of a calculator. However, certain tasks are much more difficult if a calculator is not available.
- Before the first day of the test, students using a calculator for any EOI mathematics or science assessment should be familiar with the use of the specific calculator that will be utilized. Students must be instructed in the use of calculators or this tool can actually hinder students' performance on the assessment. The appropriate calculator will be available for the online version of the EOI mathematics and science tests.

Subject-specific Requirements

- ACE Algebra I, ACE Geometry, and ACE Biology I:
  - Scientific Calculators meeting general requirements may be used on all/specified sections.
- ACE Algebra II:
  - Graphing Calculators meeting general requirements may be used on all/specified sections.

General Requirements

- Calculators are permitted but are not required.
- Calculator capabilities described for a specific subject give the *maximum* capabilities allowed; calculators with less capability are acceptable.
- Students may not share calculators.
- Students may use their own calculators or those provided by the school.
- Calculators that make noise must have the sound feature turned off.
- Calculators that have paper tape must have the tape removed.
- Calculators with power cords must have the cord removed.
- All calculators must have the memory cleared before and after the test session.
- Any programs or applications must be removed prior to the test session.

Prohibited Calculators

- Pocket organizers
- Handheld or laptop computers
- Electronic writing pads or pen-input devices
- Calculators built into cellular phones or other electronic communication devices
- Calculators with a typewriter keypad (QWERTY format)
- **Calculators with programs or applications that cannot be removed or disabled (e.g., Polynomial Root-Finder and Simultaneous Equation Solver on TI-86)**
- Calculators with built-in computer algebra systems, such as, but not limited to:
  - Casio: Algebra fx 2.0, ClassPad 300, and all model numbers that begin with CFX-9970G
  - Texas Instruments: All model numbers that begin with TI-89, TI-92, or TI-Nspire CAS
  - Hewlett-Packard: HP-48GII and all model numbers that begin with HP-40G or HP-49G

Test Security and Validity

- Using a calculator that does not meet the above requirements invalidate the test results and is a violation of test security and test validity. Any violation will be reported to the State Superintendent and may result in revocation of teaching and/or administrative certificates.

Oklahoma Academic Standards (2011 Revision)

The Oklahoma Academic Standards measured in the End-of-Instruction Biology I multiple-choice test are presented below. They represent the portion of the Oklahoma core curriculum that can be assessed in a statewide testing program. The Oklahoma Academic Standards for Biology I are grouped into standards with specific objectives listed under each one. Student performance on the multiple-choice test will be reported for the process and content at the standard level. Each question on the test will measure one process/inquiry objective and one content objective with the exception of questions on process objective 3.5, which are process/inquiry only.

End-of-Instruction Biology I

Science Processes and Inquiry Standards
High School

Process Standard 1: Observe and Measure—Observing is the first action taken by the learner to acquire new information about an organism or event. Opportunities for observation are developed through the use of a variety of scientific tools. Measurement allows observations to be quantified. The student will accomplish these objectives to meet this process standard.

1. Identify qualitative and quantitative changes in cells, organisms, populations, and ecosystems given conditions (e.g., temperature, mass, volume, time, position, length, quantity) before, during, and after an event.
2. Use appropriate tools with accuracy and precision (e.g., microscope, pipette, metric ruler, graduated cylinder, thermometer, balance, stopwatch) when measuring cells, organisms, populations, and ecosystems.
3. Use appropriate International System of Units (SI) (i.e., grams, meters, liters, degrees Celsius, and seconds) and SI prefixes (i.e., micro-, milli-, centi-, and kilo-) when measuring objects and/or events.

Process Standard 2: Classify—Classifying establishes order. Organisms and events are classified based on similarities, differences, and interrelationships. The student will accomplish these objectives to meet this process standard.

1. Using observable properties, place cells, organisms, and/or events into a biological classification system (e.g., dichotomous keys, taxonomy charts, cladograms).
2. Identify the properties by which a biological classification system is based.

Process Standard 3: Experimental Design—Understanding experimental design requires that students recognize the components of a valid experiment. The student will accomplish these objectives to meet this process standard.

1. Evaluate the design of a biology laboratory investigation.
2 Identify the independent variables, dependent variables, controlled variables, and control set-up in an experiment.
3. Use mathematics to show relationships within a given set of observations (e.g., population studies, biomass, probability).
4. Identify a hypothesis for a given problem in biology investigations.
5. Recognize potential hazards and practice safety procedures in all biology activities.

Process Standard 4: Interpret and Communicate—Interpreting is the process of recognizing patterns in collected data by making inferences, predictions, or conclusions. Communicating is the process of describing, recording, and reporting experimental procedures and results to others. Communication may be oral, written, or mathematical and includes organizing ideas, using appropriate vocabulary, graphs, other visual representations, and mathematical equations. The student will accomplish these objectives to meet this process standard.

1. Select appropriate predictions based on previously observed patterns of evidence.

*2. Report and display data using appropriate-technology and other media.

3. Interpret data tables, line, bar, trend, and/or circle graphs from existing science research or student experiments.
4. Determine if results of biological science investigations support or do not support hypotheses.
5. Evaluate experimental data to draw the conclusion that is best supported by the evidence.

*6. Routinely prepare a written report describing the sequence, results, and interpretation of a biological investigation or event.

   a. Establish and maintain a formal style and objective tone.

   b. When appropriate or possible, utilize technology to produce, publish, or revise writing products.

   c. Gather relevant information from multiple authoritative print and digital sources and follow a standard format for citation, avoiding plagiarism.

*7. Communicate or defend scientific thinking that results in conclusions.

   a. Read, comprehend, and present evidence from a range of sources (e.g., texts, experiments, or simulations) to support conclusions.

   b. Recognize bias in observation/research.

8. Identify and/or create an appropriate graph or chart from collected data, tables, or written description (e.g., population studies, plant growth, heart rate).

   a. Translate quantitative information expressed in words into visual form (e.g., a table or chart).

   b. Translate information expressed visually or mathematically (e.g., a table, chart or equation) into words.

Process Standard 5: Model—Modeling is the active process of forming a mental or physical representation from data, patterns, or relationships to facilitate understanding and enhance prediction. The student will accomplish these objectives to meet this process standard.

1. Interpret a biological model which explains a given set of observations.

2. Select predictions based on models (e.g., pedigrees, life cycles) and when appropriate, apply mathematical reasoning to make a prediction.

*3. Compare a given model to the living world.

Process Standard 6: Inquiry—Inquiry can be defined as the skills necessary to carry out the process of scientific or systemic thinking. In order for inquiry to occur students must have the opportunity to make observation, pose questions, formulate testable hypotheses, carry out experiments, and make conclusions based on evidence. The student will accomplish these objectives to meet this process standard.

*1. Ask a scientific question, formulate a testable hypothesis, and design an appropriate experiment relating to the living world.

*2. Design and conduct biological investigations in which variables are identified and controlled.

*3. Use a variety of technologies (e.g., probes, handheld digital devices, electrophoresis equipment, digital cameras, software, calculators, digital balances, microscopes, measuring instruments, and computers) to collect, analyze and display data.

*4. Inquiries should lead to the formulation of explanations or models (physical, conceptual, and mathematical). In answering questions, students should engage in research and discussions (based on scientific knowledge, the use of logic, and evidence from the investigation) and arguments that encourage the revision of their explanations, leading to further inquiry.

Content Standards
High School

Standard 1: The Cell—Cells are the fundamental unit of life, composed of a variety of structures that perform functions necessary to maintain life. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:

1. Cells are composed of a variety of structures, such as the nucleus, cell/plasma membrane, cell wall, cytoplasm, ribosomes, mitochondria, and chloroplasts.
   a. The cell/plasma membrane functions (i.e., active transport, passive transport, diffusion, osmosis, and surface area to volume ratio) to maintain homeostasis.
   b. Differentiate between hypotonic, hypertonic, and isotonic conditions.
   c. Compare and contrast prokaryotic and eukaryotic cells.
2. In multicellular organisms, cells have levels of organization (i.e., cells, tissues, organs, organ systems, organisms).
3. Specialized cells enable organisms to monitor what is going on in the world around them (e.g., detect light, sound, specific chemicals, gravity, plant tropism, sense organs, homeostasis).

Standard 2: The Molecular Basis of Heredity—DNA determines the characteristics of organisms. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:

1. Cells function according to the information contained in the master code of DNA (i.e., cell cycle, replication and transcription). Transfer RNA and protein synthesis will be taught in life science courses with rigor greater than Biology I.
2. A sorting and recombination of genes during sexual reproduction results in a great variety of possible gene combinations from the offspring of any two parents (i.e., Punnett squares and pedigrees). Students will understand concepts in a single trait cross (e.g., alleles, dominant trait, recessive trait, phenotype, genotype, homozygous, heterozygous, incomplete dominance, and sex-linked traits).

Standard 3: Biological Diversity—Diversity of species is developed through gradual processes over many generations. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:

1. Different species might look dissimilar, but the unity among organisms becomes apparent from an analysis of internal structures, the similarity of their chemical processes, and the evidence of common ancestry (e.g., homologous and analogous structures, embryology, fossil record, genetic data).

2. Characteristics of populations change through the mechanism of natural selection. These biological adaptations, including changes in structures, behaviors, and/or physiology, may enhance or limit survival and reproductive success within a particular environment.

3. Broad patterns of behavior exhibited by animals have changed over time to ensure reproductive success. Responses to external stimuli can result from interactions with the organism's own species and others, as well as environmental changes; these responses can be either innate or learned.

Standard 4: The Interdependence of Organisms—Interdependence of organisms in an environment includes the interrelationships and interactions between and among organisms. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:

1. Organisms both cooperate and compete in ecosystems (e.g., symbiotic relationships).

2. Living organisms have the capacity to produce populations of infinite size, but environments and resources limit population size (i.e., carrying capacity, limiting factors, ecological succession).

Standard 5: Matter, Energy, and Organization in Living Systems—Living systems require a continuous input of energy to maintain their chemical and physical organizations. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:

1. The complexity and organization of organisms accommodates the need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism (i.e., photosynthesis and cellular respiration).

2. As matter and energy flow through different levels of organization of living systems and between living systems and the physical environment, chemical elements are recombined in different ways by different structures. Matter and energy are conserved in each change (i.e., water cycle, carbon cycle, nitrogen cycle, food webs, and energy pyramids).

3. Matter on the earth cycles among the living (biotic) and nonliving (abiotic) components of the biosphere.

NOTE: Asterisks (*) have been used to identify standards and objectives that must be assessed by the local school district. All other skills may be assessed by the Oklahoma School Testing Program (OSTP).

Oklahoma School Testing Program

Oklahoma Modified Alternate Assessment Program
Biology I – Test Blueprint
School Years 2014-2015 and 2015-2016

The blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard and objective of the Priority Academic Student Skills / Oklahoma Academic Standards (PASS/OAS).

Process/Inquiry Standards and Objectives	Ideal Number of Items	Ideal Perce1.05ntage of Items
P1.0 Observe and Measure	**6**	**12%**
1.1 Qualitative/Quantitative Observations and Changes	4	
1.2 Use Appropriate Tools and 1.3 Use Appropriate System International (SI) Units	2	
P2.0 Classify	**6**	**12% - 13%**
2.1 Use Observable Properties to Classify	2 - 4	
2.2 Identify Properties of a Classification System	2 - 4	
P3.0 Experimental Design	**13 - 16**	**27% - 32%**
3.1 Evaluate the Design of Investigations	3 - 4	
3.2 Identify Controlled Variables and Experimental Controls in an Experiment and 3.4 Identify a Testable Hypothesis in a Biology Investigation	3 - 4	
3.3 Use Mathematics to Show Relationships	3 - 4	
3.5 Identify Potential Hazards and Practice Safety Procedures in All Science Activities	3 - 4	
P4.0 Interpret and Communicate	**16 - 19**	**33% - 39%**
4.1 Select Predictions Based on Observed Patterns of Evidence	3 - 4	
4.3 Interpret Line, Bar, Trend, and Circle Graphs	3 - 4	
4.4 Accept or Reject a Hypothesis	3	
4.5 Make Logical Conclusions Based on Experimental Data	3 - 4	
4.8 Identify an Appropriate Graph or Chart	3 - 4	
a. Translate Quantitative Information Expressed in Words into Visual Form (e.g., a table, chart, equation)		
b. Translate Information Expressed Visually or Mathematically (e.g., a table, chart, equation) into Words		
P5.0 Model	**6**	**13%**
5.1 Interpret a Model Which Explains a Given Set of Observations	3	
5.2 Select Predictions Based on Models Using Mathematics When Appropriate	3	
Total Test	**46 - 49**	**100%**

(Please note this blueprint does not include items that may be included for field testing.)

Oklahoma School Testing Program

Oklahoma Modified Alternate Assessment Program
Biology I – Test Blueprint
School Years 2014-2015 and 2015-2016

Content Standards and Objectives	Ideal Number of Items	Ideal Percentage of Items
C1.0 The Cell	**9 - 12**	**21% - 27%**
1.1 Cell Structures and Functions	3 - 5	
1.2 Differentiation of Cells	2 - 4	
1.3 Specialized Cells	2 - 4	
C2.0 The Molecular Basis of Heredity	**9 - 12**	**21% - 27%**
2.1 DNA Structure and Function in Heredity	3 - 6	
2.2 Sorting and Recombination of Genes	4 - 7	
C3.0 Biological Diversity	**9 - 12**	**21% - 27%**
3.1 Variation Among Organisms	2 - 4	
3.2 Natural Selection and Biological Adaptations	3 - 5	
3.3 Behavior Patterns Can Be Used to Ensure Reproductive Success	2 - 4	
C4.0 The Interdependence of Organisms	**6 - 8**	**14% - 18%**
4.2 Organisms Both Cooperate and Compete	3 - 5	
4.3 Population Dynamics	3 - 5	
C5.0 Matter/Energy/Organization in Living Systems	**10**	**21%**
5.1 Complexity and Organization Used for Survival	3 - 4	
5.2 Matter and Energy Flow in Living and Nonliving Systems	3 - 4	
5.3 Earth Cycles Including Abiotic and Biotic Factors	3 - 4	
Total Test	**43 - 46[1]**	**100%**

(Please note this blueprint does not include items that may be included for field testing.)

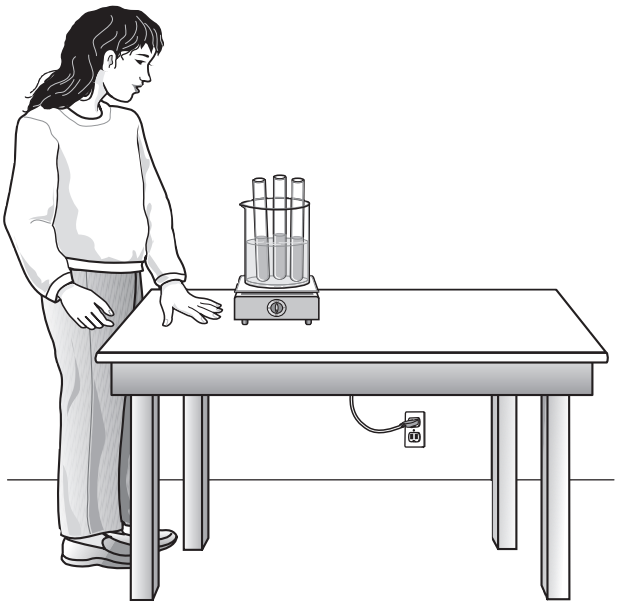
[1] Each test item aligns to both a Process Standard/Objective and a Content Standard/Objective, except for Safety Items which only align to P3.5.

- A minimum of 6 items is required to report a standard, and a minimum of 4 items is required to report results for an objective.
- The Oklahoma Modified Alternate Assessment Program (OMAAP) will only be available for repeat testers during the 2014-2015 and 2015-2016 School Years.

Sample Item
Original Item Oklahoma Academic Process
Standard 3. Experimental Design—Experimenting is a method of discovering information. It requires making observations and measurements to test ideas. The student will accomplish these objectives to meet this process standard; Objective 3.5. Recognize potential hazards and practice safety procedures in all biology activities.

Sample

The picture below shows Essie performing a laboratory experiment.



What should Essie do to make her experiment safer?

A wear safety goggles during the experiment

B use bare hands to remove the test tubes

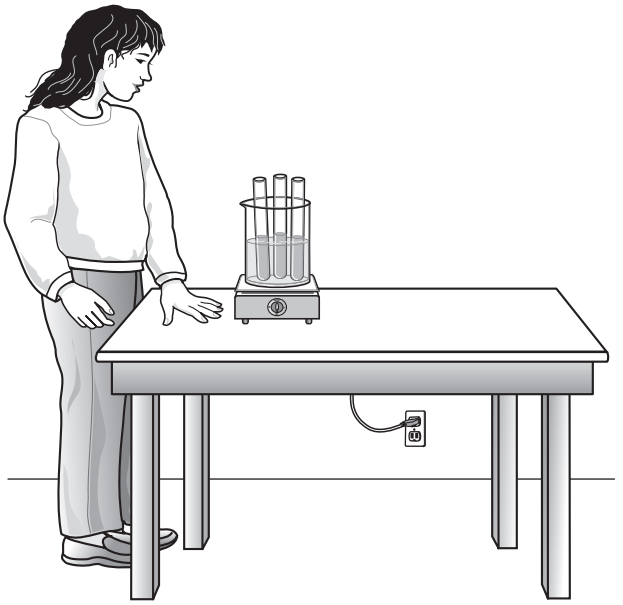
C leave the hot plate on when she exits the laboratory

D place corks in the test tubes to prevent them from boiling over

Modified Item

SAMPLE

The picture below shows Essie performing a laboratory experiment.



What should Essie do to make her experiment safer?

Ⓐ wear safety goggles during the experiment

Ⓑ use bare hands to remove the test tubes

Ⓒ leave the hot plate on when she exits the laboratory

Details of Item Edit:

- Answer choice D was removed.

Biology I Sample Test Directions

The sample test is a condensed version of a test, similar to the test you will be taking in this content area.

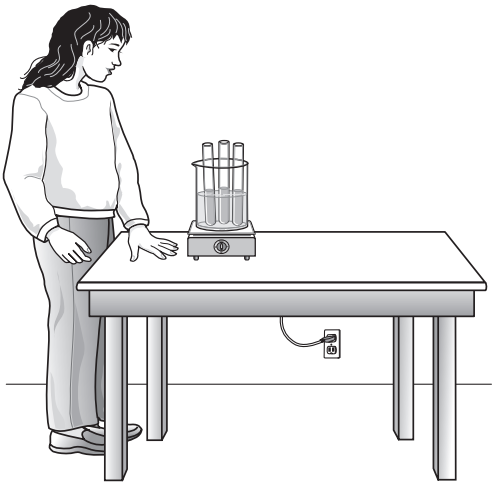
Sample Test Directions

1. Read each question to yourself.
2. Think of the best answer.
3. Answers will be marked directly in the test book.
4. Mark the circle for the answer you have chosen directly on the corresponding letter (as shown in the example below).

Example:

SAMPLE

The picture below shows Essie performing a laboratory experiment.



What should Essie do to make her experiment safer?

● wear safety goggles during the experiment

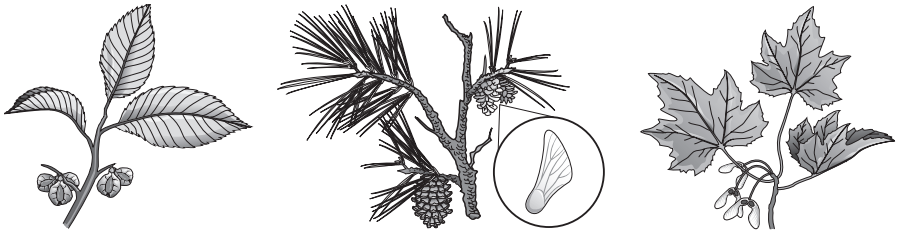
Ⓑ use bare hands to remove the test tubes

Ⓒ leave the hot plate on when she exits the laboratory

GO ON

Sample Test

1 **Parts of three different species of trees are shown below.**



Which characteristic enables these species of trees to move into new areas quickly?

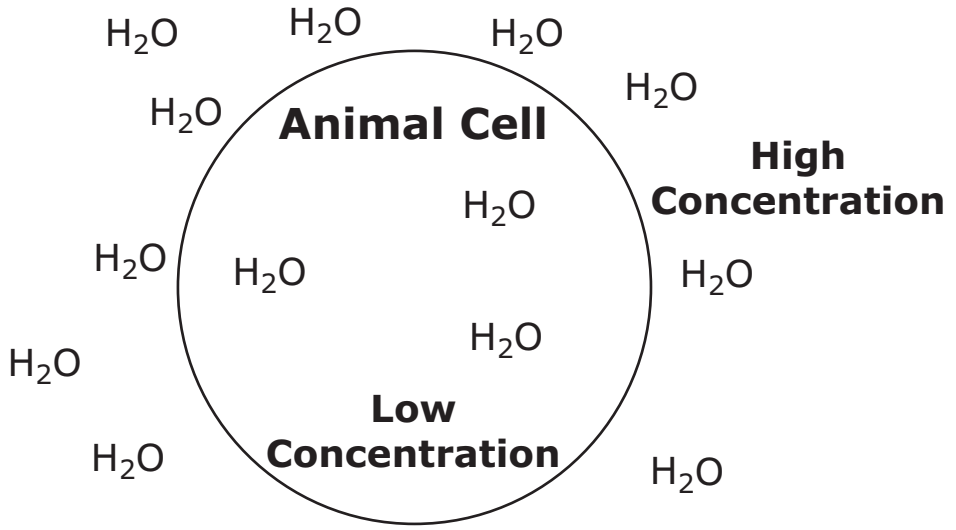
Ⓐ the number of leaves

Ⓑ the shape of the seeds

Ⓒ the length of the branches

GO ON

2 **The figure below shows an animal cell placed in distilled water.**



What will happen to the animal cell?

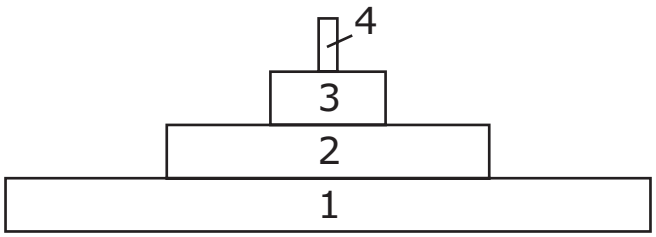
Ⓐ More water will move into the cell than out of the cell.

Ⓑ More water will move out of the cell than into the cell.

Ⓒ The same amount of water will move into and out of the cell.

GO ON

3 **The diagram below is an energy pyramid that groups the organisms of an ecosystem into four levels.**



What will happen to the energy in level 2 of the pyramid?

Ⓐ Most of it will be lost to the environment.

Ⓑ Most of it will be passed to the level above it.

Ⓒ Most of it will be passed to the level below it.

GO ON

4 **A student crossed a tall pure-breeding (homozygous) pea plant with a dwarf pure-breeding (homozygous) pea plant. All of the seeds grew into tall pea plants.**

Tall Pea Plant Dwarf Pea Plant

How should the student interpret the results of her experiment?

Ⓐ Tall stem height is recessive to dwarf stem height in pea plants.

Ⓑ Dwarf stem height is dominant to tall stem height in pea plants.

Ⓒ Tall stem height is dominant to dwarf stem height in pea plants.

GO ON

5 **Latosha performed an experiment on four equal-sized tomato plants. She gave each plant the same amount of light and nutrients, but different amounts of water. She frequently measured the amount of oxygen produced by each plant.**

Which hypothesis is Latosha studying in this experiment?

Ⓐ If the amount of light is increased, the rate of photosynthesis will increase.

Ⓑ If the amount of water is increased, the rate of photosynthesis will increase.

Ⓒ If the amount of nutrients is increased, the rate of photosynthesis will increase.

6 **Joel finished an experiment and had some unused chemical solution.**

What should Joel do with the extra solution?

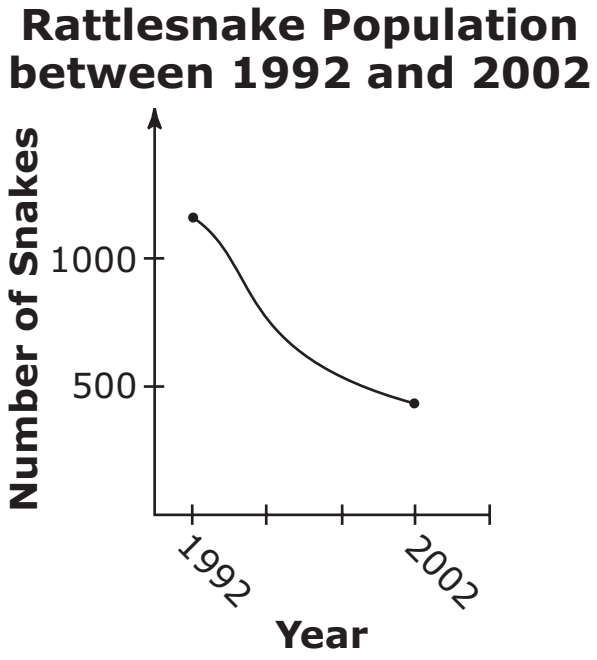
Ⓐ pour it down the sink

Ⓑ pour it back into its original container

Ⓒ dispose of it as directed by his teacher

GO ON

7 **Scientists studied a rattlesnake population from 1992 through 2002. No snakes moved into or out of the area during this time.**



Which of these happened between 1992 and 2002?

Ⓐ The birth rate was equal to the death rate.

Ⓑ The birth rate was less than the death rate.

Ⓒ The birth rate was greater than the death rate.

GO ON

8 **Female hanging flies require their male mates to bring them a gift, such as a moth, to eat. Female hanging flies raised in isolation from adults also require a gift from their mates.**

Which statement explains this behavior?

Ⓐ The behavior is learned.

Ⓑ The behavior is inherited.

Ⓒ The behavior is acquired randomly.

GO ON

9 **Scientists have classified the reticulated giraffe and the mountain goat as the most closely related animals in the table.**

Characteristics of Four Animals

Organism	Native Range	Number of Toes	Most Active Day or Night?
Mountain Goat	North America	2	Day
Grevy's Zebra	Africa	1	Day
Reticulated Giraffe	Africa	2	Day
Asian Elephant	Asia	3 to 5	Day

Which property best supports the classification of the reticulated giraffe and the mountain goat?

Ⓐ the native range

Ⓑ the number of toes

Ⓒ the time they are most active

GO ON

10 **In a species of wildflower, some plants produce red flowers while others produce white flowers. In a cross between two red wildflowers, 75% of the offspring produced red flowers and 25% produced white flowers.**

RR = red flowers

Rr = red flowers

rr = white flowers

	R	r
R	RR	Rr
r	Rr	rr

If two wildflower plants with <u>white</u> flowers were crossed, which percentage of their offspring would produce red flowers?

Ⓐ 0%

Ⓑ 50%

Ⓒ 75%

STOP

Answer Key

Biology I			
Item Number	**Correct Answer**	**Process/Inquiry Objective**	**Content Objective**
Sample	A	3.5	none
1	B	1.1	3.2
2	A	4.1	1.1
3	A	5.2	5.2
4	C	4.5	2.2
5	B	3.4	5.1
6	C	3.5	none
7	B	1.1	4.2
8	B	2.2	3.3
9	B	2.2	3.1
10	A	4.1	2.2