North Carolina End-of-Course Tests
Biology

What are the purposes of the NC Testing Program?

The North Carolina End-of-Course Tests are required by General Statute 115C-174.10 as a component of the North Carolina Annual Testing Program. As stated, the purposes of North Carolina state-mandated tests are "(i) to assure that all high school graduates possess those minimum skills and that knowledge thought necessary to function as a member of society; (ii) to provide a means of identifying strengths and weaknesses in the education process in order to improve instructional delivery; and (iii) to establish additional means for making the education system at the State, local, and school levels accountable to the public for results."

How are the Biology Test Scores Used?

Scores from the North Carolina End-of-Course Tests (EOC) of Biology are used in the State's ABCs Accountability Program in the growth component and the performance composite. In addition, Biology EOC scores are used to fulfill the testing and reporting requirements in science at the high school level for the No Child Left Behind Act of 2001 under the Title I requirements effective with the 2007-08 school year.

Students entering the ninth grade for the first time in 2006-07 and beyond will be required to meet new exit standards. The exit standards are applicable to all students expecting to graduate with a North Carolina High School Diploma except students with disabilities who are following the Occupational Course of Study. These students are required to achieve at Achievement Level III (with one standard error of measurement) or above on the five EOC assessments (Algebra I, Biology, English I, Civics & Economics, and U.S. History) and to successfully complete a senior project. Students following the Occupational Course of Study are required to meet rigorous exit standards as outlined in State Board of Education policy HSP-N-004 (16 NCAC 6D. 0503).

What is measured by the test?

The North Carolina End-of-Course Test of Biology assesses the biology goals and objectives of the 2004 North Carolina *Standard Course of Study* for science. Students who are administered the Biology EOC tests are expected to demonstrate knowledge of important principles and concepts, understand and interpret laboratory activities, and relate scientific information to everyday situations. In order to align with the curricular focus on inquiry instruction and higher order thinking, the revised Biology EOC tests have a concentration on processing information, understanding the relationship between science and technology, and scientific concepts.

Each item on the Biology EOC test is related to one of the Biology content objectives in the North Carolina *Standard Course of Study* for science. The content objectives (goals 2 through 5) of Biology describe the knowledge and skills that are to be taught in all Biology courses in North Carolina and provide the basis for the content of the items on the tests. Many of the items in this revision of the Biology EOC test assess whether a student can move beyond memorization and apply process skills to the investigation of science. Additional information about the content of the objectives can be obtained from the NCDPI Web site at http://www.dpi.state.nc.us/curriculum/science/scos/.

Descriptive Information for the North Carolina End-of-Course Test of Biology

Goal	Description of Goal	Percentage Range of Emphasis
1*	The learner will develop abilities necessary to do and understand scientific inquiry.	28% – 32%
2	The learner will develop an understanding of the physical, chemical and cellular basis of life.	25% – 30%
3	The learner will develop an understanding of the continuity of life and the changes of organisms over time.	30% – 35%
4	The learner will develop an understanding of the unity and diversity of life.	25% – 30%
5	The learner will develop an understanding of the ecological relationships among organisms.	15% – 20%

*To assess the student's understanding of scientific inquiry and technological design, objectives in Goal 1 will be tested in the context of the content of Goals 2 – 5.

How is the test administered?

Multiple equivalent forms are administered in each classroom to provide a breadth of information for curriculum evaluation and planning. The North Carolina End-of-Course Test of Biology consists of 80 multiple-choice questions administered during a fixed block of time not to exceed four hours within the final week (block schedule or summer school) or the final two weeks (traditional schedule) of the course.

How was the test developed?

Most of the questions on the Biology EOC tests were written by trained North Carolina teachers and educators. All items on the Biology EOC tests were reviewed by trained North Carolina teachers and educators during the 2004-05 and 2005-06 school years. The questions were field tested in the first and second semesters of the 2006-07 school year. The field test involved approximately 22,000 students from randomly selected schools across the state. The revised Biology EOC tests are being implemented statewide initially as operational tests in the 2007-08 school year.

What kinds of scores do students receive on the test?

Each student's Individual Student Report (ISR) will report a scale score, achievement level, and achievement level descriptor for the Biology EOC test performance. The scale used will have a range of approximately 120-180 with a mean of 150 and a standard deviation of 10. The use of scale scores provides for easier and more consistent interpretations of the results from test to test. Achievement levels are also generated to provide an interpretation of student performance relative to a predetermined standard. Achievement level descriptors are provided to describe typical student behaviors relative to curricular expectations as measured by the Biology EOC tests. Student scores are converted to one of the four achievement level categories shown below. The four achievement levels are typically initially established by linking teacher judgments to the performance distribution of student scores from the first fall operational administration of the test. Final performance standards will be established after the first full operational year (2007-08).

Achievement Levels for the North Carolina End-of-Course Test of Biology

Level	Description	Scale Score Range
1	Students performing at this level do not have sufficient mastery of knowledge and skills of the course to be successful at a more advanced level in the content area. Students performing at Achievement Level I do not have sufficient mastery of biological concepts. They have a minimal understanding of the physical, chemical, and cellular basis of life, the continuity of life and changes in organisms over time, classification systems and the structure and function of organisms, ecological relationships among organisms, and adaptive responses of organisms.	TBD
2	Students performing at this level demonstrate inconsistent mastery of knowledge and skills of the course and are minimally prepared to be successful at a more advanced level in the content area. Students performing at Achievement Level II demonstrate inconsistent mastery of biological concepts. They have a limited understanding of the physical, chemical, and cellular basis of life, the continuity of life and changes in organisms over time, classification systems and the structure and function of organisms, ecological relationships among organisms, and adaptive responses of organisms.	TBD
3	Students performing at this level consistently demonstrate mastery of the course subject matter and skills and are well prepared for a more advanced level in the content area. Students performing at Achievement Level III demonstrate mastery of biological concepts and are prepared for more advanced science courses. They have an adequate understanding of the physical, chemical, and	TBD

	cellular basis of life, the continuity of life and changes in organisms over time, classification systems and the structure and function of organisms, ecological relationships among organisms, and adaptive responses of organisms.	
4	Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient in the course subject matter and skills and are very well prepared for a more advanced level in the content area Students performing at Achievement Level IV demonstrate superior understanding of biological concepts and are very well prepared for more advanced science courses. They have an advanced level of understanding of the physical, chemical, and cellular basis of life, the continuity of life and changes in organisms over time, classification systems and the structure and function of organisms, ecological relationships among organisms, and adaptive responses of organisms.	TBD

Who takes the NC EOC in Biology?

Students enrolled in a Biology Course for credit regardless of the grade level of the student shall take the Biology EOC test. Students who are repeating the Biology course for credit shall take the EOC test. Students enrolled for standard biology credit in a similar course, honors course, Advanced Placement (AP) course, or International Baccalaureate (IB) course shall take the EOC test in Biology. In cases in which a local system exempts students from the Biology course final exams, the student must take the Biology EOC tests. Effective with the 2001-02 school year, student scores on the Biology EOC test shall count for at least 25 percent of the student's final course grade.

Sample Items

Sample items will be available on the NCDPI Web site at http://www.dpi.state.nc.us/accountability/testing/eoc/bio/ later in the fall 2007. The objective noted on each item indicates the curriculum objective the item is designed to measure. The thinking skill corresponds to the level of thinking skill the item requires as defined by a thinking skills framework adapted from *Dimensions of Thinking* by Robert J. Marzano and others.