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ABSTRACT

The end-of-grade component of the North Carolina Testing Program was implemented in 1992-93 in response to state legislation. The end-of-grade tests emphasize higher-order thinking skills and the ability of students to solve real-life types of problems. These tests also reflect the higher standards set forth in national curriculum standards for student achievement. The open-ended assessment was administered to all students at grades 5 and 8 in November, 1996. One form was administered to all students in each grade, and the time of administration was 90 minutes. Each open-ended test is built around a reading passage or passages, and each test consists of six reading and six mathematics items. Professional scorers were trained to score the assessments using rubrics developed by North Carolina educators. Results from the open-ended assessment were returned to the school districts in March 1997 to give teachers feedback between instructional efforts and student performance. This was the first year of assessments in a new format, so comparison data was not available for earlier years. For grade 5, the mean total scale score for females was 48.2 and for males, 46.9. The mean total scale score for White students was 49.8, compared to 42.8 for Black students, 44.0 for Hispanic students, 43.6 for American Indians, 49.3 for Asians, 47.9 for multiracial students, and 46.6 for "other" students. In grade 8, results showed similar values, with females outscoring males, and results for ethnic groups generally were parallel to the grade-5 scores. Tables provide information about reading and mathematics achievement by ethnic group, gender, region, and school district. (Contains 12 figures, 10 tables, and 5 charts.) (SLD)

The 1996-97 Report of Student Performance

North Carolina Open-Ended Assessment

Grades 5 and 8

Public Schools of North Carolina
State Board of Education . Jay Robinson, Chairman
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The

1996-97

Report of Student Performance

North Carolina

Open-Ended Assessment

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Testing Section
Division of Accountability Services
North Carolina Department of Public Instruction
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Background

The end-of-grade component of the North Carolina Testing Program was implemented in 1992-93 in response to legislation passed by the 1989 North Carolina General Assembly. The end-of-grade tests, like the North Carolina *Standard Course of Study,* place an emphasis on higher-level thinking skills—the ability of students to access, organize, process, analyze, evaluate and apply information to solve real-world problems and make informed decisions. End-of-grade tests also reflect the higher standards set forth by national curriculum standards for student achievement; they measure the skills students are expected to master in order to compete in a changing, complex world. The tests use several formats—traditional multiple-choice, writing samples, and open-ended questions to provide a balanced assessment of the breadth and depth of student knowledge of content and application of skills.

The North Carolina Open-Ended Assessment Grades 5 and 8 is designed to broadly measure higher level thinking skills by requiring students to apply or demonstrate skills and knowledge beyond the recall level on challenging subject matter. Test items commonly require the integration of knowledge and skills from more than one curricular area. Instead of choosing from a list of provided possible answers, students are required to generate their responses by writing out their thoughts. Often the quality of the students' responses is judged by the level of the students' explanation.

Open-ended assessment was initially implemented in 1992-93 in North Carolina at grades 3-8. The tests contained a balanced number of questions in reading, mathematics, and social studies for a total of 10 questions. The tests were scored centrally by teachers during the summer and were designed to inform instruction. No individual student scores were provided from the earlier versions of open-ended assessment. In 1995 with the onset of the ABCs Plan to reform public education, a decision was made to reduce the amount of testing. Open-ended assessment was suspended during the 1995-96 school year to allow for planning and revision of the assessment to focus on more challenging subject matter. The more challenging open-ended assessment represents a higher standard that focuses on what students should know and should be able to do instead of what they know and are able to do.

The 1996-97 North Carolina Open-Ended Assessment at each grade focuses on the content of a passage and emphasizes reading, mathematics, and writing. Skills from the social studies and science curricula are integrated into mathematics and reading. The open-ended assessment was administered to all students at grades 5 and 8 on November 13, 1996. One test form was administered to all students at each grade level. The test administration time allowed was 90 minutes.

What is the format of the test?

Each open-ended test is built around a reading passage or passages with test items that are loosely linked to the content of the passage. The passage or passages may include a variety of genres and writing for different purposes. Students may be directed to respond to open-ended items by:

- constructing a response,
- writing sentences,
- designing brochures,
- explaining an author's purpose,
- solving problems,
- constructing tables or charts,
- interpreting data,
- analyzing information, or
- writing a short essay.

Each test consists of 12 items — six reading and six mathematics. Students are required to respond to the items in the spaces provided in the test books. While the content of the mathematics items is linked to the reading passage, the items are not dependent on an understanding of the content of the passage. These items consistently measure the mathematics goals and strands as independent items. Social studies and science skills and content are embedded within some of the reading and mathematics items.

The reading section of the grade 5 test contains an item that requires descriptive writing; the grade 8 test contains an item that requires persuasive writing. These items allow for a three-quarter page response, and the scoring rubrics are developed to evaluate reading comprehension, composing, and applied language conventions.

How are the tests scored?

Professional scorers were trained to score the open-ended assessments at grades 5 and 8. Data Recognition Corporation (Minneapolis, MN) served as the contractor during the 1996-97 scoring. The scorers used rubrics and scoring guides developed by an advisory group of North Carolina teachers and curriculum specialists. Group and individual student scores along with student tests were returned to the school systems in March, 1997.

For scoring purposes, there is a general rubric for reading and a general rubric for mathematics. The use of a general rubric insures that the same level of expectation is maintained for all items within a content area. For example, a score point of two on one reading item should describe the same level of performance as a two on another reading item. In addition to a general rubric, each item has a specific scoring rubric that defines the levels of expectation for the particular item.

The number of score points in a rubric depends on the complexity of the item. Rubrics for items on the open-ended assessment range from two score points on a simple question that requires a convergent response to four score points for the more complex items that often require substantial elaboration or a more divergent response.

What are the general rubrics for reading and mathematics?

The general rubrics provide information regarding the scoring standards used in November, 1996. The general rubrics for reading and mathematics items follow.

GENERAL RUBRIC

Reading

0 Answer is unresponsive, unrelated, or inappropriate.

1 Answer deals with material on a concrete, literal level that is accurate in most dimensions.

2 Answer deals with most aspects of the question and makes correct inferences, although minor errors may exist. Comprehension is on an inferential level and the key skills are synthesis and analysis.

3 Answer addresses all aspects of the question and uses sound reasons and cites and explains appropriate examples. Uses skills of evaluation as well as analysis and synthesis.

GENERAL RUBRIC

Mathematics

0 Answer is unresponsive, unrelated, or inappropriate. Nothing correct.

1 Addresses item but only partially correct; something correct related to the question.

2 Answer deals correctly with most aspects of the question, but something is missing. May deal with all aspects but have minor errors.

3 All parts of the question are answered accurately and completely. All directions are followed.

How are the scores reported?

The results from the open-ended assessment were returned to each district during March, 1997. Schools and LEAs received class rosters, school rosters, and LEA reports. On the individual score report, students received an open-ended total scale score with subscores for reading and mathematics. The graphic for each score shows the scale score obtained with bars to the left and right indicating one standard error of measurement around the score. The length of the bar indicates that the true score will be within this range of scale scores two-thirds of the time.

Student scores provide feedback to teachers for a clearer link between instructional efforts and student performance. In addition, the original student test booklets and scoring guides were distributed to the teachers. Such feedback should lead to a higher level of achievement in this area in the future.

Achievement levels are not available for the 1996-97 open-ended assessment; however, they will be provided for the 1997-98 and subsequent administrations.

1996-97 State-level Open-Ended Assessment Results

This is the first year of the open-ended assessment using the new format; therefore, comparisons cannot be made with previous years' scores. At the state level, average student scores are low in comparison to typical student performance on other types of assessments.

Raw Scores

The modal reading score at both grade levels was a raw score point of one. One point is assigned to responses at the concrete, literal level. While the encouraging news is that more students in 1996-97 than in 1994-1995 are attempting the open-ended reading tasks and often moved out of the zero score point and into one's, most students still are not reaching the higher scores of two's or three's. At the higher score points student answers are expected to be more complete, to have clear explanations, and to go beyond the literal level. Also at the higher score points students are expected to provide responses that demonstrate skills in analysis, interpretation, and/or evaluation of ideas and concepts.

In analyzing the mathematics questions, a significant number of students received zero's. A zero score is given to responses that contain no information that is correct.

Scale Scores

The scales for the open-ended assessment were derived from the characteristics of the items when they were field tested during the 1995-96 school year. Each of the three scales for each grade (reading, mathematics, and total score) was calibrated to have a mean of 50 and a standard deviation of 10. Table A (below) shows the state statistics for the 1996-97 administration of the tests.

Scaling of the North Carolina Open-Ended Assessment at Grades 5 and 8 was provided by the L. L. Thurstone Psychometric Laboratory at the University of North Carolina at Chapel Hill based on an analysis of the data from the 1995-96 field test administration.

Table A. 1996-97 North Carolina Open-Ended Assessment
Descriptive Statistics
Scale Scores

		Total		Reading		Mathematics	
Grade	N	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
5	89,353	47.5 (9.0)	25-80	45.2 (11.6)	15-80	49.9 (8.8)	36-81
8	86,479	48.5 (9.1)	24-78	46.8 (10.0)	12-79	50.0 (10.3)	35-78

Performance of Subgroups at Grade 5

Gender. The mean total scale score for females is 48.2, and the mean total scale score for males is 46.9. On the average, females scored a 46.4, while males averaged 44.0 on the reading items. On mathematics items there was no significant difference between the average scale score for females (50.0) and males (49.9).

Ethnicity. The mean total scale score for White students is 49.8 compared to 42.8 for Black students, 44.0 for Hispanic students, 43.6 for American Indian students, 49.3 for Asian students, 47.9 for Multi-racial students, and 46.6 for Other students.

The average reading scale score for White students is 47.5 while Black students scored 40.4, Hispanic students scored 41.0, American Indian students scored 40.4, Asian students scored 46.7, Multi-racial students scored 45.8, and Other students scored 43.9.

The mean for White students on mathematics is 52.0 compared to 45.4 for Black students, 47.0 for Hispanic students, 46.9 for American Indian students, 51.9 for Asian students, 50.1 for Multi-racial students, and 49.3 for Other students.

Figure 1 depicts the total scale score at grade 5 by ethnicity and gender. Figure 3 illustrates the mean reading scale score at grade 5 by ethnicity and gender; Figure 5 illustrates the mean mathematics scale score at grade 5 by ethnicity and gender.

Performance of Subgroups at Grade 8

Gender. On the average, female students received a total scale score of 49.5; males received a total scale score of 47.5. The mean reading scale score for females is 48.4 and for males is 45.2. In mathematics, females scored a 50.5, and males scored a 49.6.

Ethnicity. White students scored a mean total scale score of 51.0 compared to 43.1 for Black students, 44.5 for Hispanic students, 44.1 for American Indian students, 50.2 for Asian students, 48.6 for Multi-racial students, and 47.9 for Other students

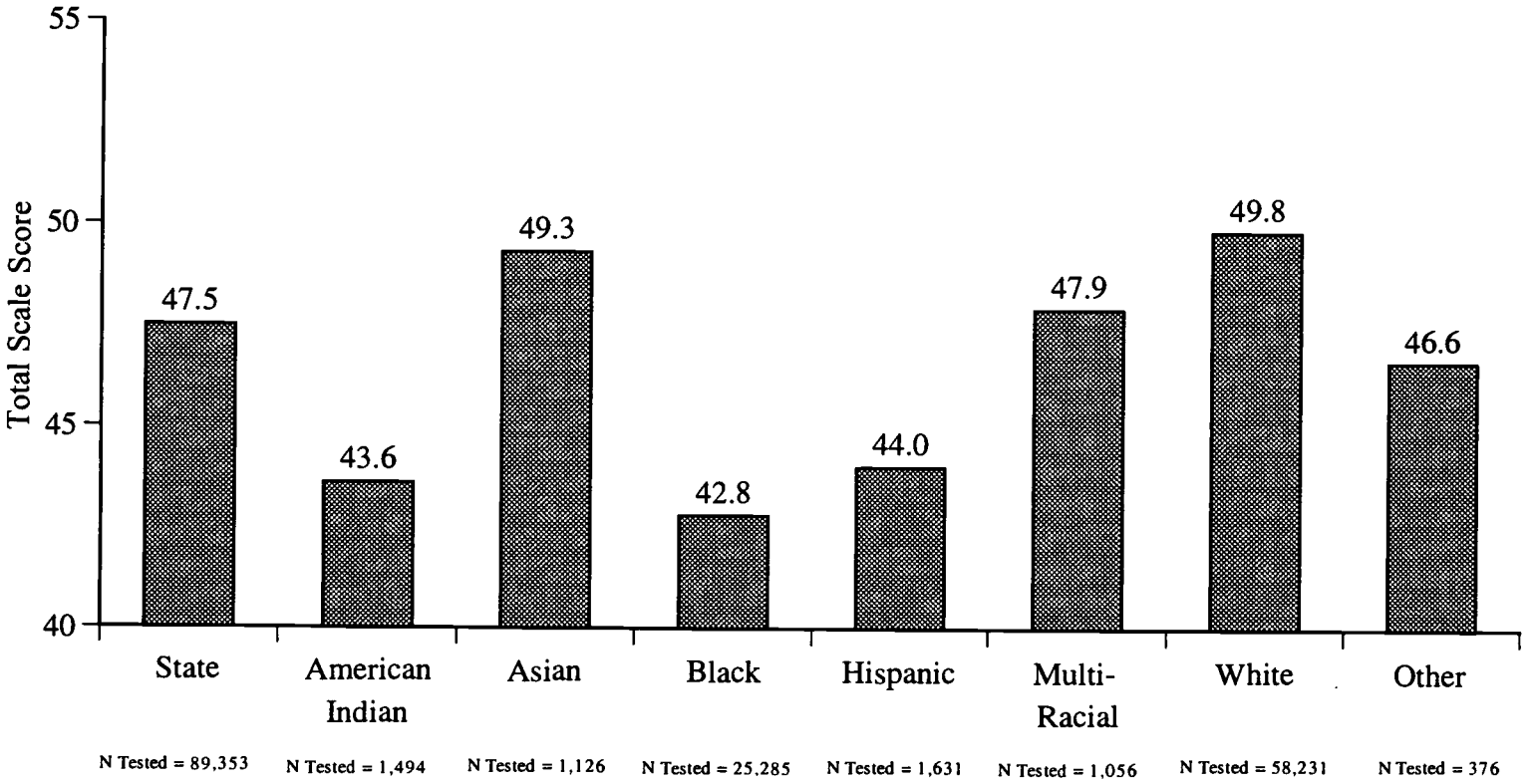
The mean reading scale score for White students is 49.0 while Black students scored a 42.2, Hispanic students scored a 42.7, American Indian students scored a 42.0, Asian students scored a 47.7, Multi-racial students scored a 47.5, and Other students scored a 46.1.

The average mathematics scale score for White students is 52.9 compared to 43.9 for Black students, 46.2 for Hispanic students, 46.1 for American Indian students, 52.8 for Asian students, 49.7 for Multi-racial students, and 49.5 for Other students.

Figure 2 illustrates the total scale score at grade eight by ethnicity and gender. Figures 4 and 6 depict the mean reading and mathematics scale scores respectively at grade eight by ethnicity and gender.

Figure 1. 1996-97 North Carolina Open-Ended Assessment
Total Mean Scale Scores
Grade 5

Results by Ethnic Group



Results by Gender

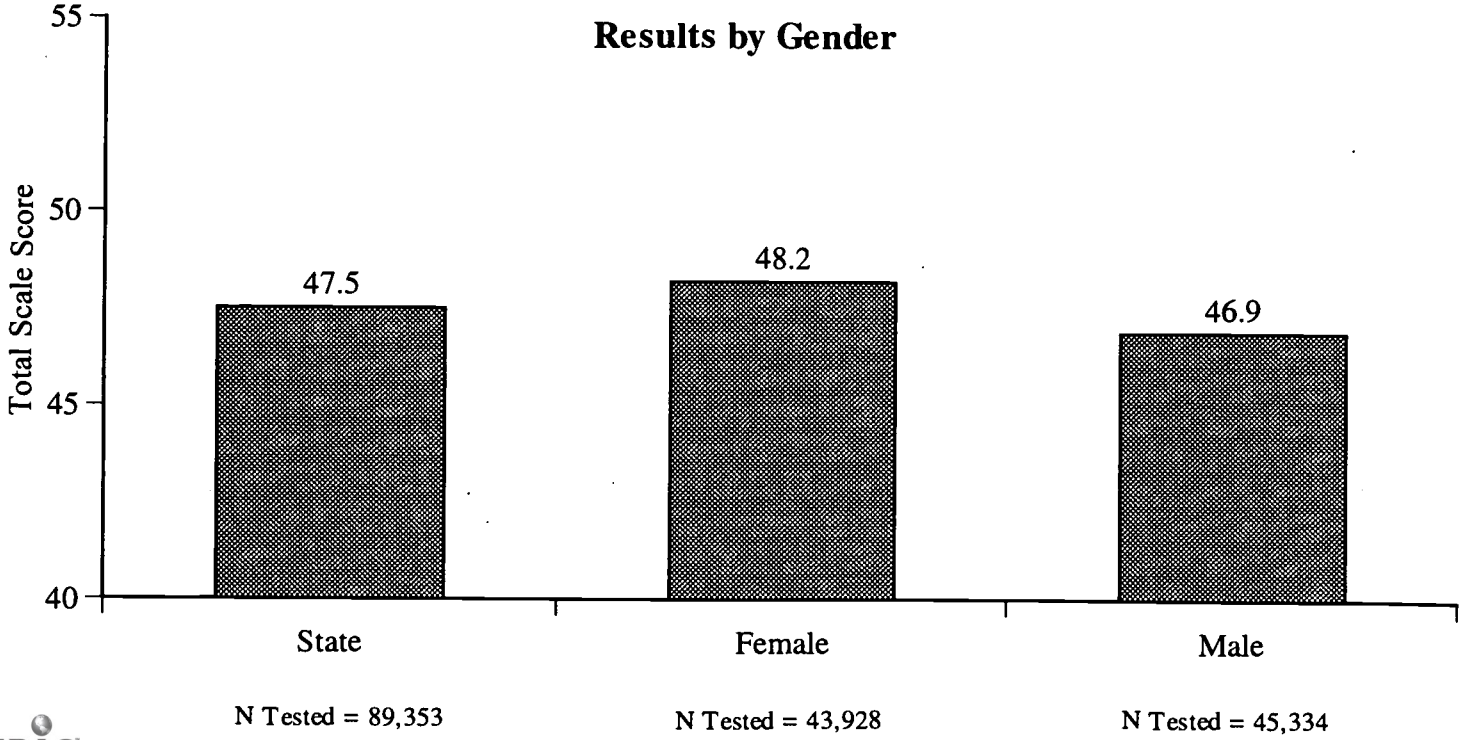
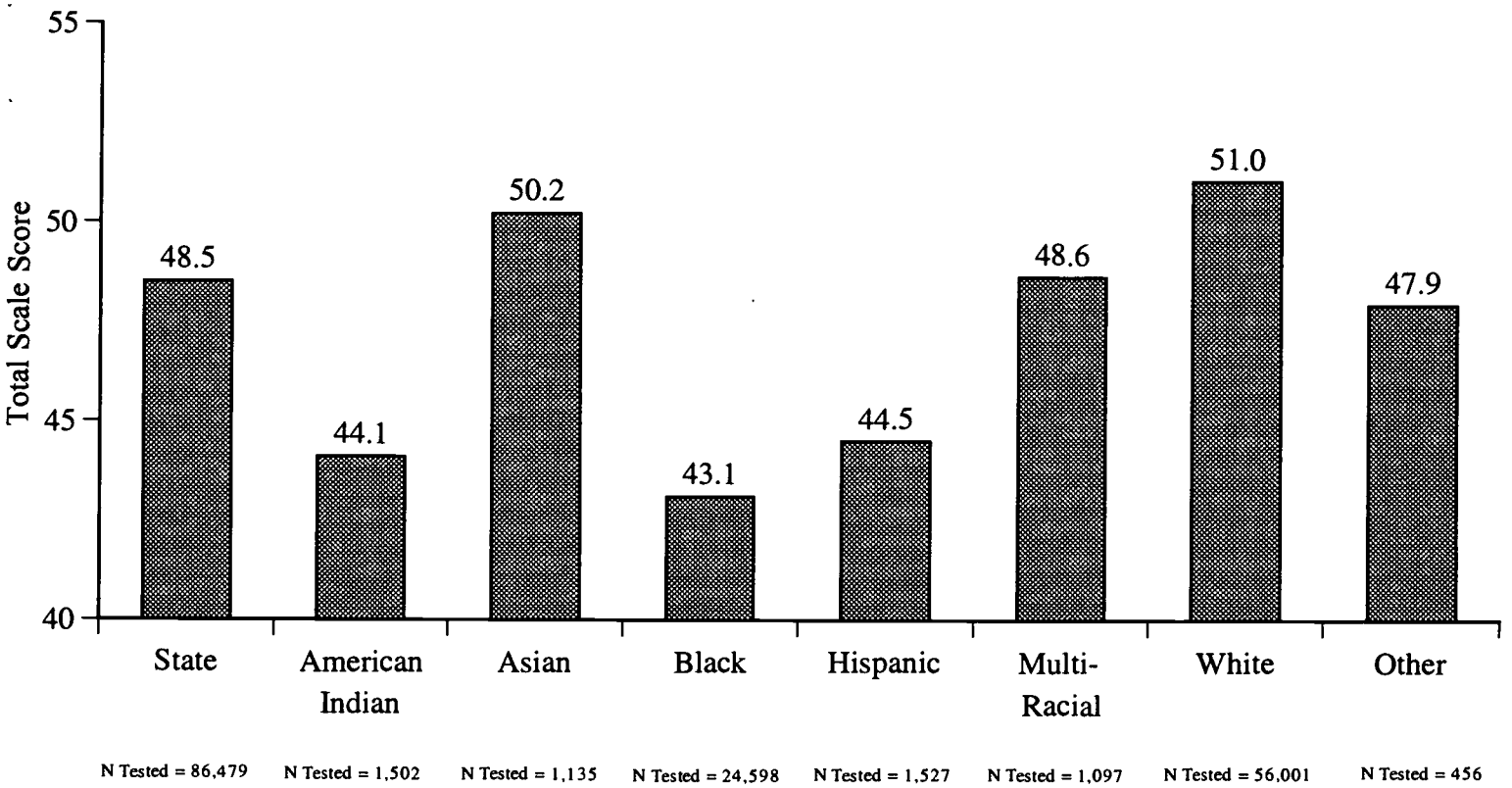


Figure 2. 1996-97 North Carolina Open-Ended Assessment
Total Mean Scale Scores
Grade 8

Results by Ethnic Group



Results by Gender

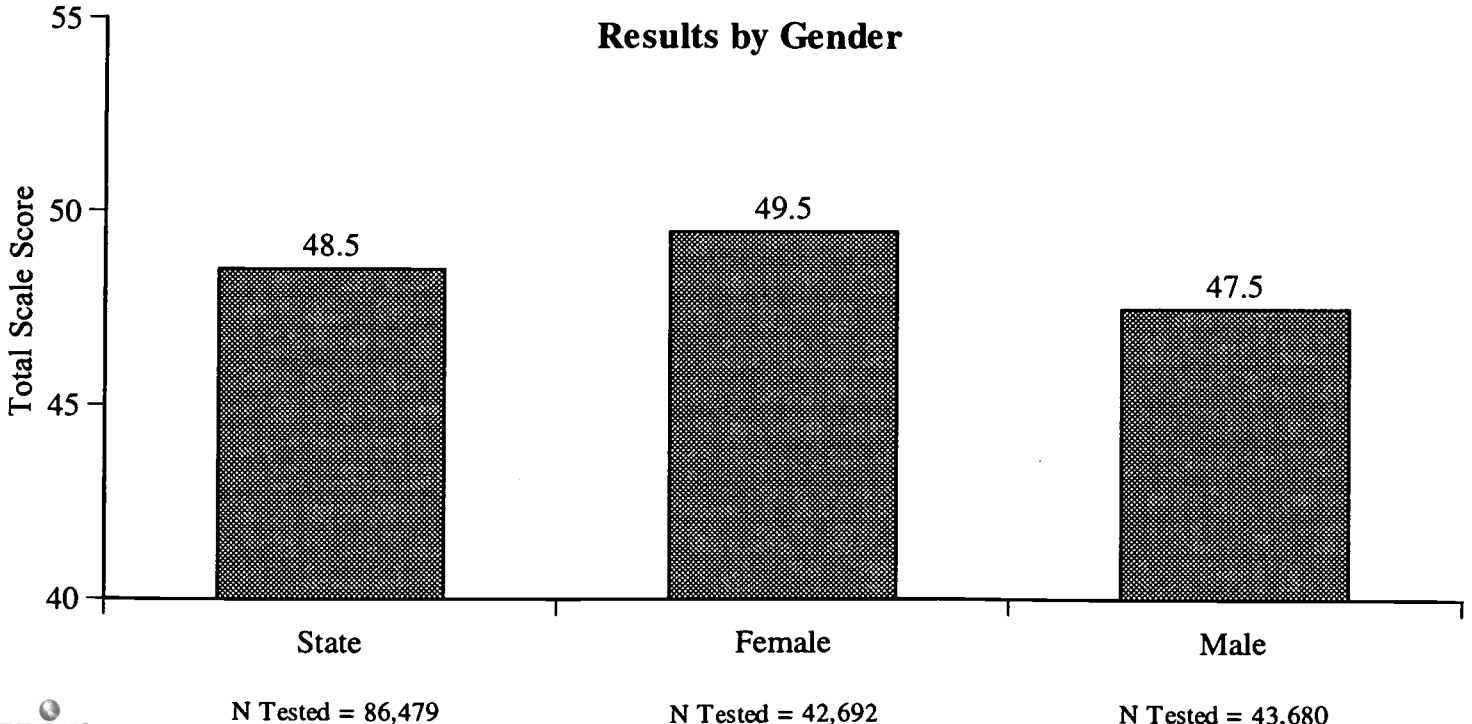
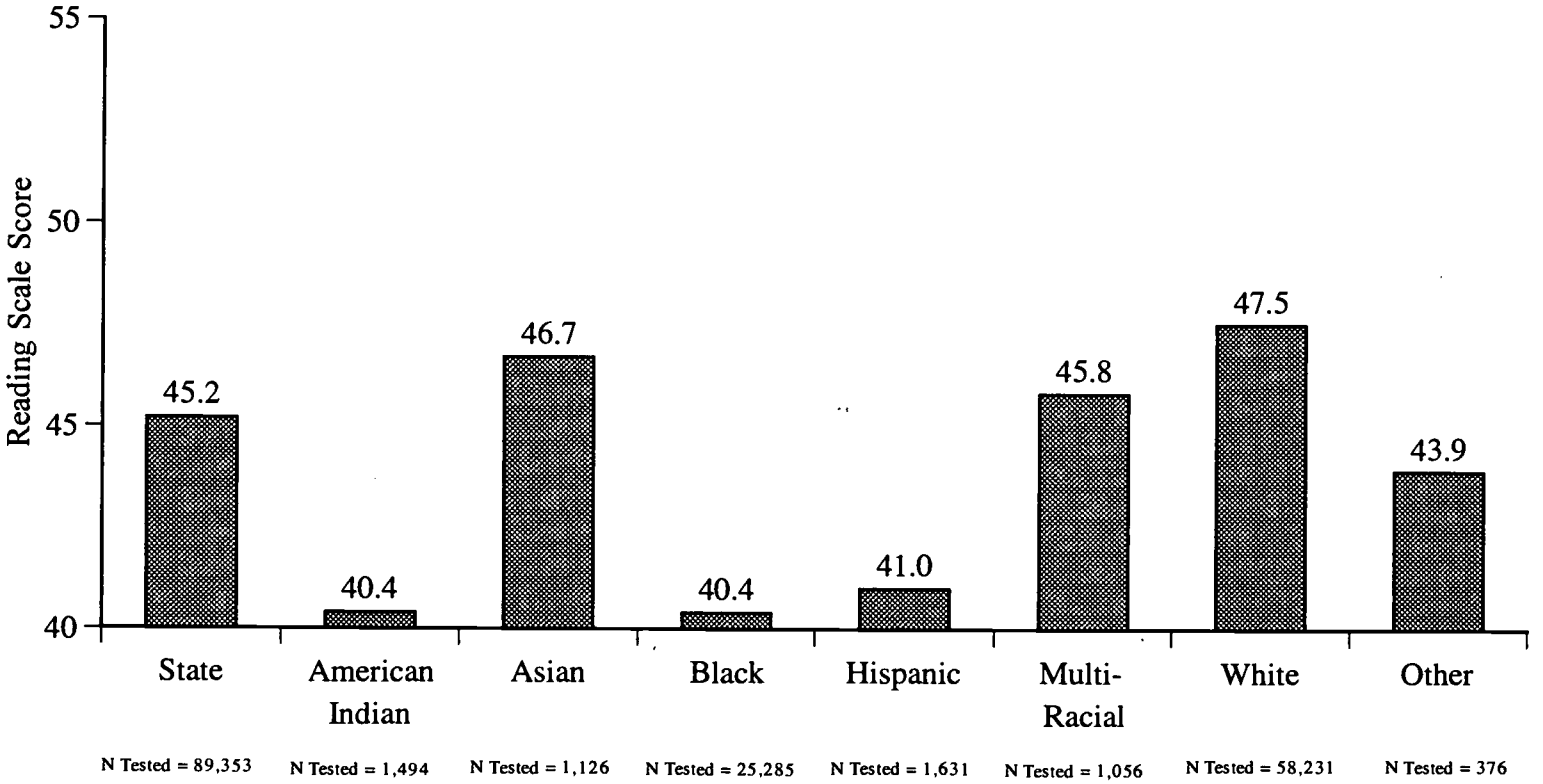


Figure 3. 1996-97 North Carolina Open-Ended Assessment Reading Mean Scale Scores Grade 5

Results by Ethnic Group



Results by Gender

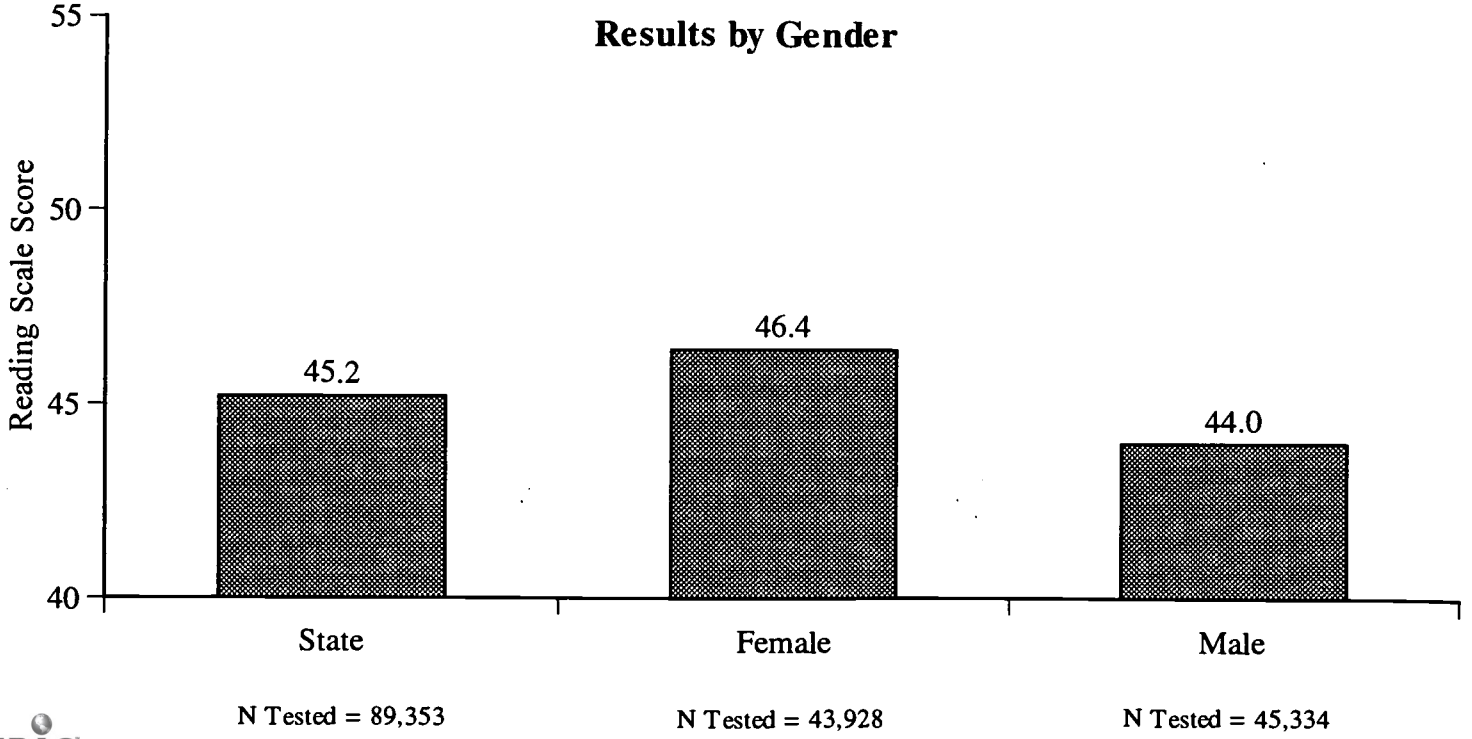
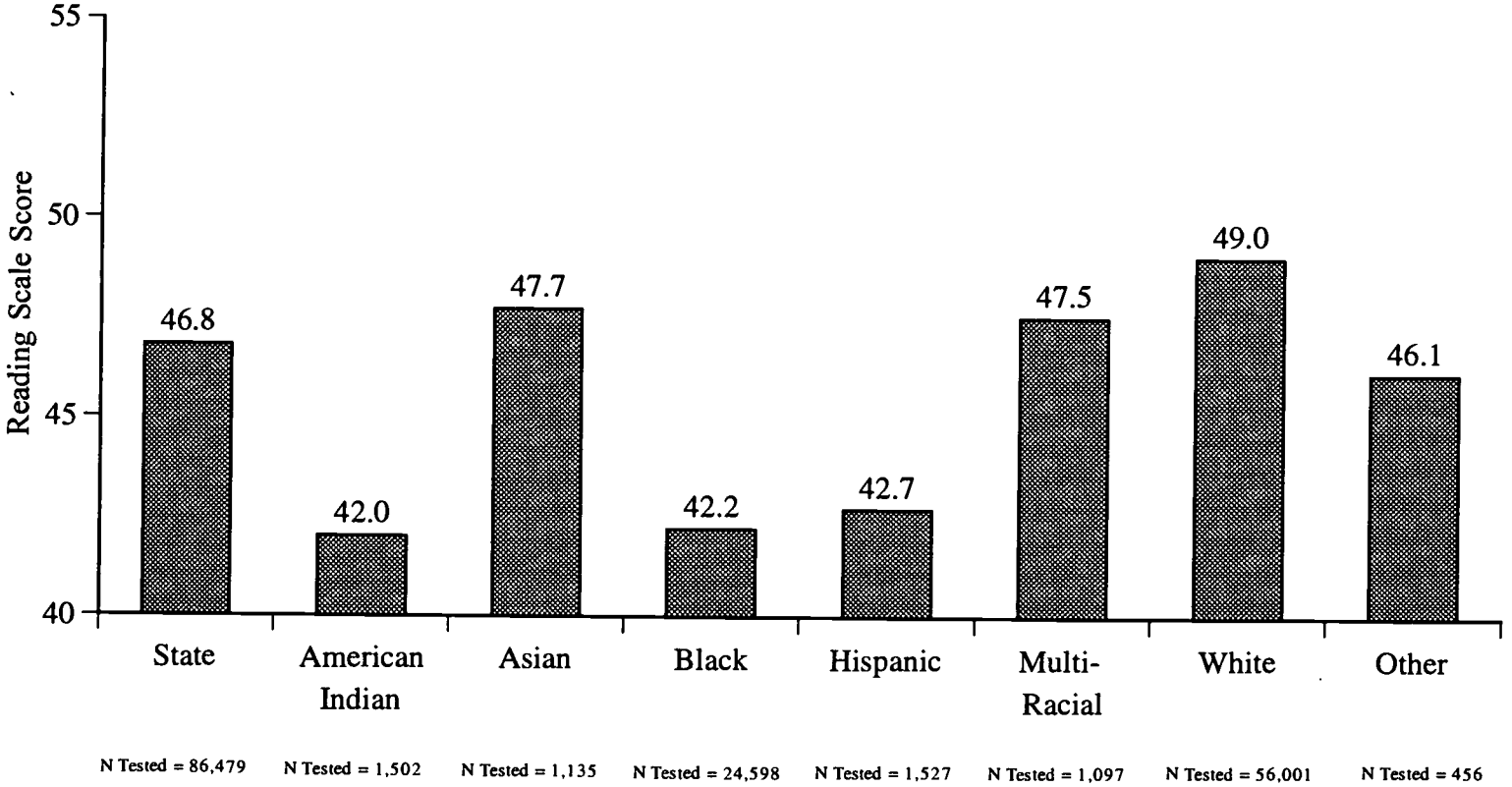


Figure 4. 1996-97 North Carolina Open-Ended Assessment
Reading Mean Scale Scores
Grade 8

Results by Ethnic Group



Results by Gender

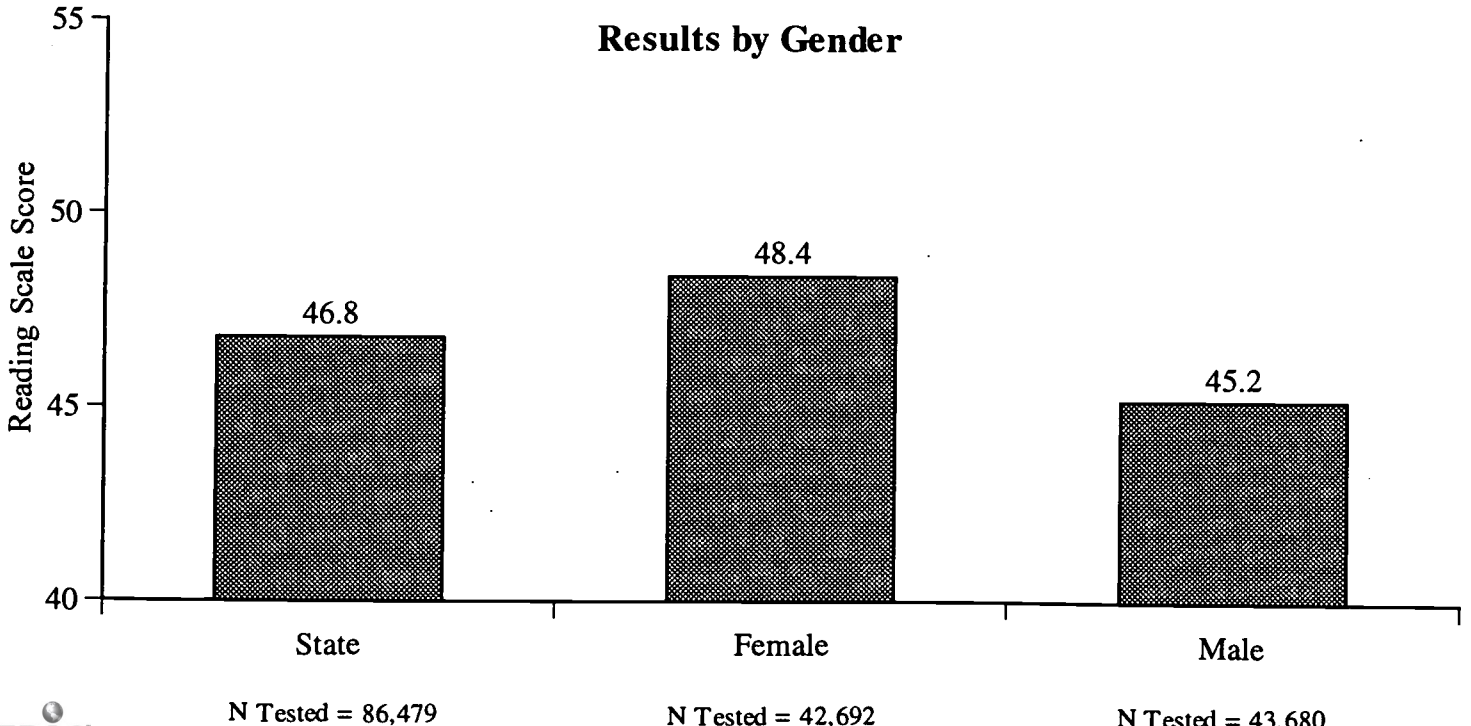
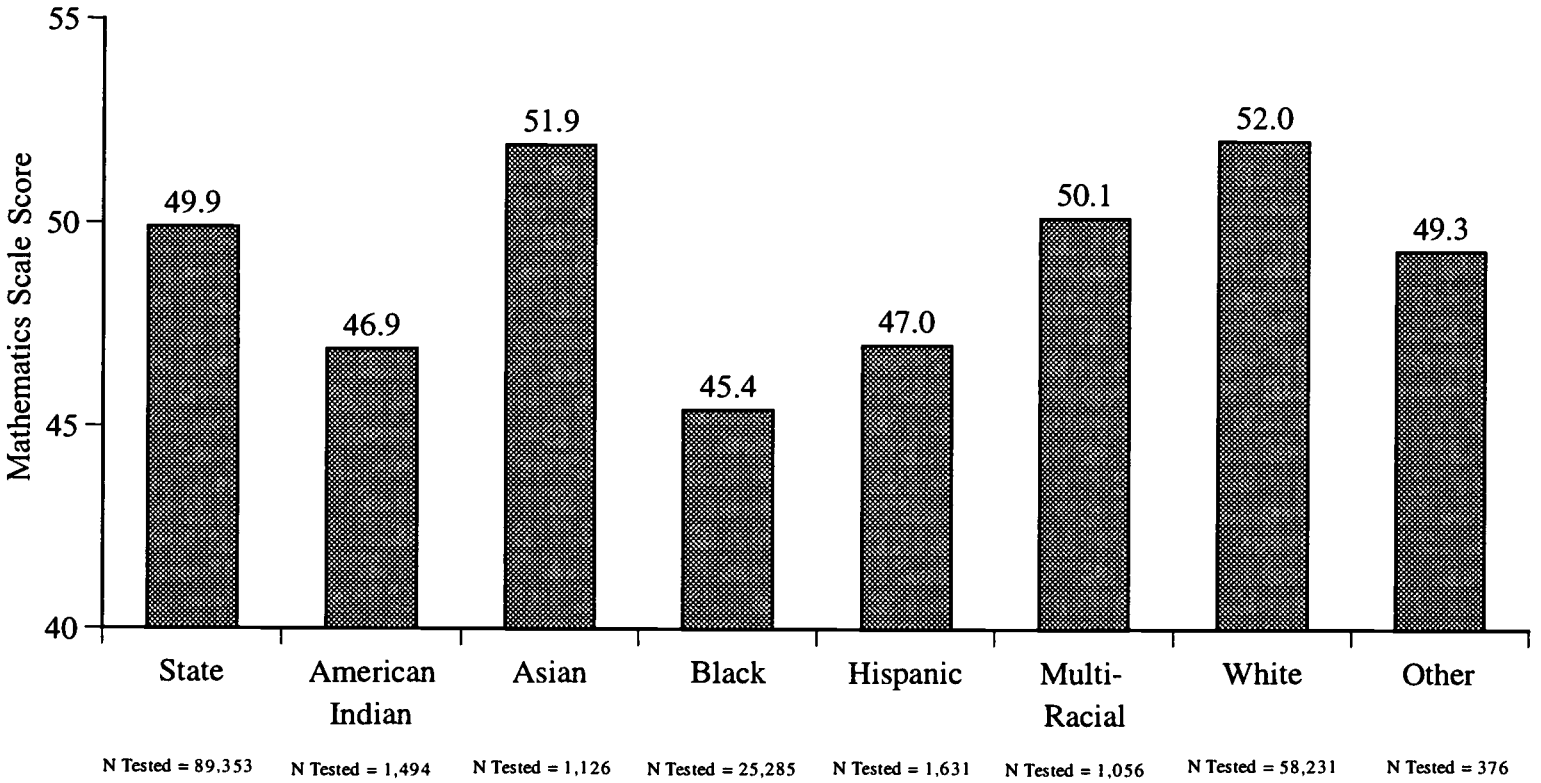


Figure 5. 1996-97 North Carolina Open-Ended Assessment Mathematics Mean Scale Scores Grade 5

Results by Ethnic Group



Results by Gender

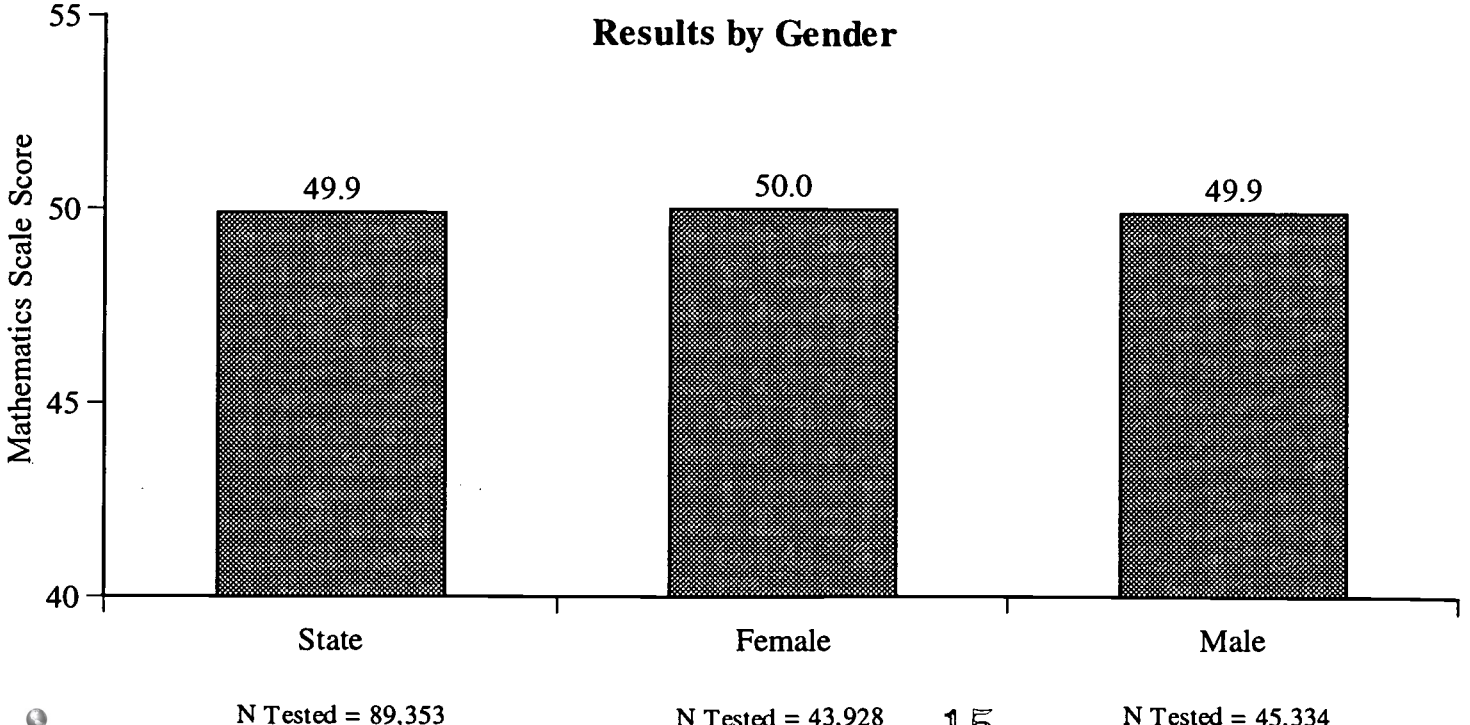
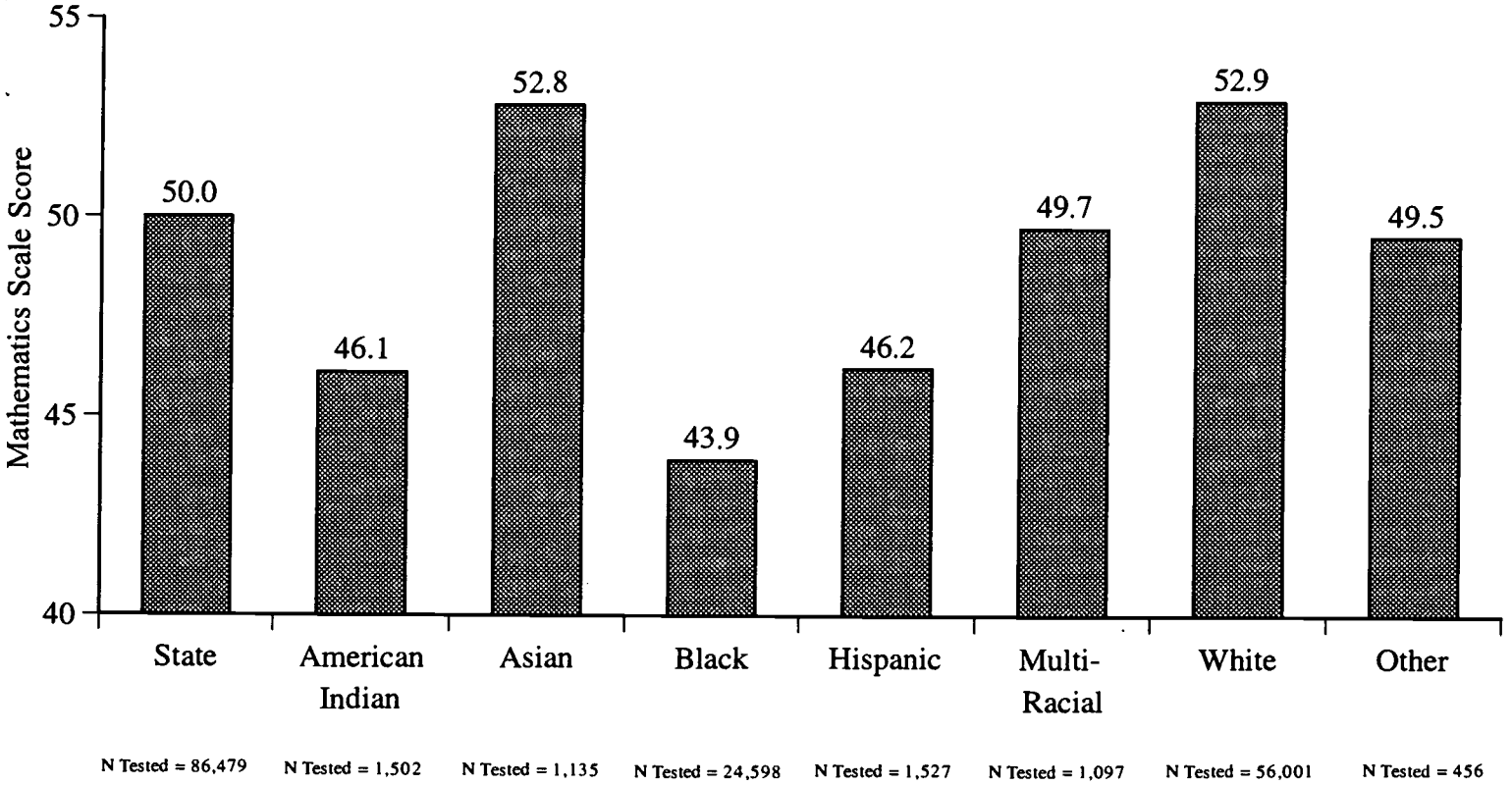
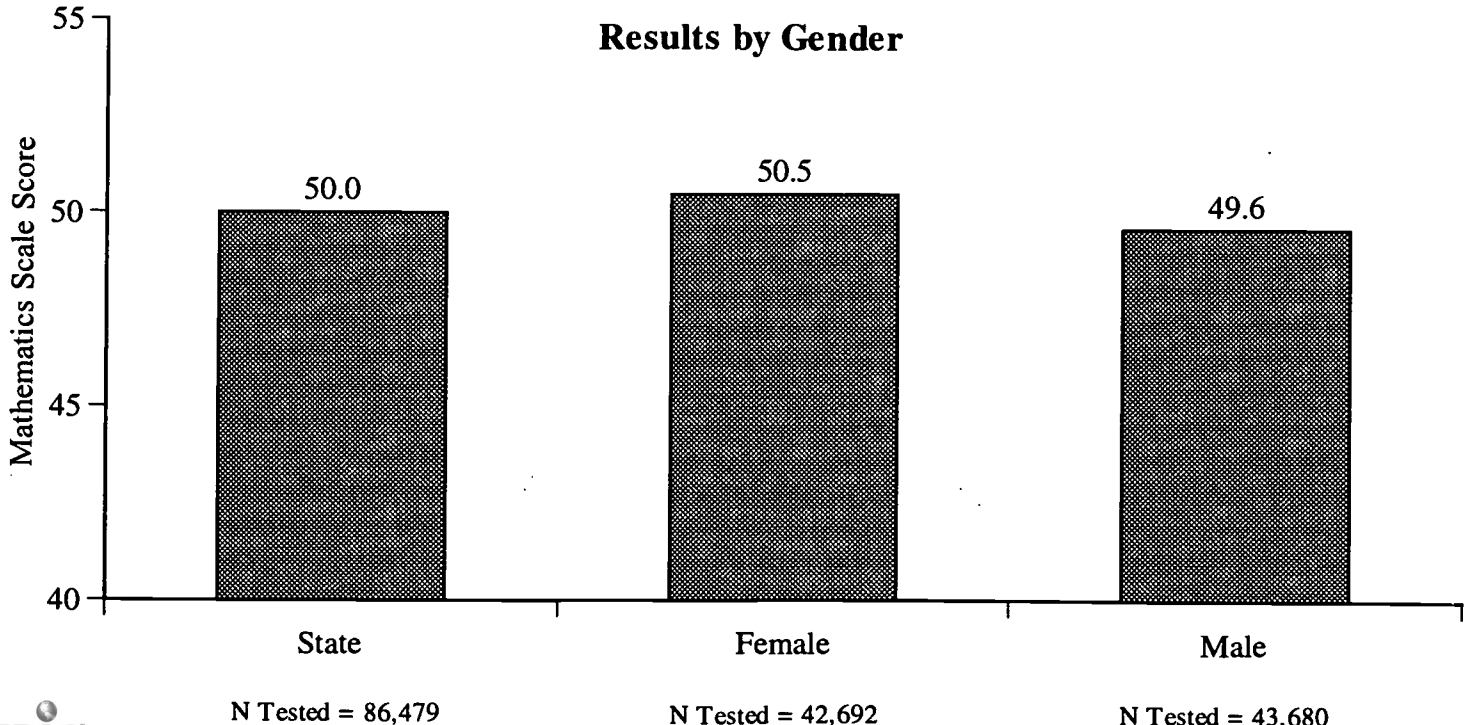


Figure 6. 1996-97 North Carolina Open-Ended Assessment
Mathematics Mean Scale Scores
Grade 8

Results by Ethnic Group



Results by Gender



1996-97

North Carolina

Open-Ended Assessment

Grades 5 and 8

Regional By-LEA Performance

Tables 1 through 6 provide the number of students tested, total mean scale scores, and the mean scale scores in reading and mathematics for each of the LEAs by (old six Technical Assistance Centers configurations) region. Statistics are provided for grades 5 and 8.

Table 1. 1996-97 North Carolina Open-Ended Assessment
Mean Scale Scores
Grade 5
Region by LEA

Western Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Buncombe	1,817	48.3	53.7	51.0
Asheville City	321	43.2	49.3	46.3
Cherokee	263	45.3	49.6	47.5
Clay	89	47.8	54.4	51.0
Graham	93	45.7	52.0	48.9
Haywood	575	47.2	51.8	49.5
Henderson	807	49.1	52.4	50.7
Jackson	258	47.9	52.3	50.1
Macon	280	47.0	52.2	49.6
Madison	163	44.1	49.4	46.8
McDowell	436	45.6	49.1	47.3
Mitchell	179	48.4	51.0	49.6
Polk	174	50.4	50.8	50.6
Rutherford	749	45.2	48.1	46.6
Swain	116	48.3	53.0	50.7
Transylvania	293	49.8	53.2	51.5
Yancey	187	46.0	50.8	48.4

Northwest Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Alexander	378	44.8	49.3	47.0
Alleghany	97	50.7	52.6	51.7
Ashe	252	43.2	50.6	46.9
Avery	177	51.9	54.7	53.4
Burke	1,012	48.3	52.0	50.2
Caldwell	838	46.8	49.7	48.2
Catawba	1,075	45.8	50.4	48.1
Hickory City	339	46.6	49.6	48.1
Newton-Conover	171	45.7	49.8	47.7
Davidson	1,329	44.8	49.9	47.4
Lexington City	225	41.8	49.4	45.5
Thomasville City	159	41.1	46.4	43.7
Davie	371	44.9	52.3	48.6
Forsyth	3,041	45.6	51.7	48.7
Iredell-Statesville	1,069	42.7	49.4	46.1
Mooresville City	262	46.9	50.3	48.6
Stokes	521	46.4	51.2	48.8
Surry	567	48.3	51.3	49.8
Elkin City	74	49.4	48.5	48.9
Mount Airy City	147	46.5	53.5	50.1
Watauga	400	53.2	53.2	53.2
Wilkes	768	46.3	51.1	48.7
Yadkin	441	45.3	52.8	49.1

Table 2. 1996-97 North Carolina Open-Ended Assessment
Mean Scale Scores
Grade 5
Region by LEA

Southwest Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Anson	284	42.7	48.7	45.7
Cabarrus	1,262	46.4	51.2	48.8
Kannapolis City	312	42.1	46.8	44.4
Cleveland	691	43.3	49.3	46.3
Kings Mountain	308	44.6	51.5	48.1
Shelby City	226	46.5	49.8	48.1
Gaston	2,303	42.9	48.0	45.4
Hoke	427	40.5	47.0	43.7
Lincoln	696	45.7	51.5	48.6
Mecklenburg	6,951	45.2	49.8	47.5
Montgomery	289	41.4	46.3	43.8
Moore	750	45.3	49.2	47.2
Richmond	567	42.1	46.2	44.1
Rowan	1,490	42.5	48.0	45.2
Scotland	514	43.9	45.8	44.8
Stanly	563	47.8	50.4	49.1
Albemarle City	169	44.2	49.1	46.5
Union	1,470	48.3	52.4	50.4

Northeast Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Beaufort	511	45.1	49.1	47.1
Bertie	278	39.6	45.3	42.4
Camden	114	45.1	48.3	46.7
Chowan	196	43.7	46.9	45.2
Currituck	244	47.6	51.8	49.8
Dare	329	50.2	50.3	50.2
Edgecombe	559	43.8	45.5	44.5
Gates	159	43.5	47.7	45.5
Halifax	394	42.6	49.5	46.0
Roanoke Rapids City	258	46.2	48.8	47.5
Weldon City	80	40.4	47.3	43.8
Hertford	318	41.6	48.5	45.0
Hyde	56	42.2	47.9	45.0
Martin	334	44.6	48.3	46.4
Northampton	293	39.8	45.8	42.8
Pasquotank	473	42.4	49.1	45.7
Perquimans	159	40.3	46.8	43.5
Pitt	1,413	43.4	48.7	46.0
Tyrrell	61	40.5	47.0	43.7
Washington	162	42.5	46.4	44.3

Table 3. 1996-97 North Carolina Open-Ended Assessment
Mean Scale Scores
Grade 5
Region by LEA

Southeast Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Bladen	396	43.8	47.5	45.6
Brunswick	735	42.4	47.7	45.0
Carteret	636	44.8	49.0	46.9
Columbus	557	43.4	46.7	45.0
Whiteville City	204	47.5	49.5	48.5
Craven	1,130	48.0	50.5	49.2
Cumberland	4,142	44.8	49.2	47.0
Duplin	592	42.7	48.4	45.5
Greene	196	39.7	48.7	44.2
Jones	102	46.8	49.1	48.0
Lenoir	744	45.3	47.0	46.1
New Hanover	1,516	47.0	52.5	49.7
Onslow	1,513	44.5	49.7	47.1
Pamlico	139	48.6	50.6	49.5
Pender	429	45.9	48.9	47.4
Robeson	1,646	40.1	46.5	43.3
Sampson	508	43.7	48.6	46.1
Clinton City	186	44.7	47.3	45.9
Wayne	1,417	42.9	47.9	45.4

Central Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Alamance	1,359	44.8	51.5	48.2
Caswell	301	45.1	49.4	47.2
Chatham	521	45.3	49.9	47.6
Durham	2,186	43.9	49.3	46.5
Franklin	545	41.6	47.1	44.3
Granville	603	44.3	49.6	46.9
Guilford	4,357	46.7	50.7	48.7
Harnett	1,075	42.2	47.2	44.7
Johnston	1,296	46.3	48.5	47.4
Lee	650	44.5	49.7	47.1
Nash/Rocky Mount	1,222	44.6	49.8	47.2
Orange	425	45.0	49.7	47.4
Chapel Hill City	615	52.5	55.2	53.9
Person	422	43.4	49.9	46.6
Randolph	1,182	44.8	49.7	47.2
Asheboro City	311	47.0	52.3	49.7
Rockingham	1,056	43.9	48.9	46.4
Vance	536	39.9	46.1	42.9
Wake	6,619	47.7	52.8	50.3
Warren	242	39.4	45.2	42.2
Wilson	866	41.6	46.7	44.1

Table 4. 1996-97 North Carolina Open-Ended Assessment
Mean Scale Scores
Grade 8
Region by LEA

Western Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Buncombe	1,808	50.9	54.2	52.6
Asheville City	297	49.3	51.3	50.4
Cherokee	265	49.2	52.5	50.9
Clay	111	48.7	52.9	50.9
Graham	84	53.3	53.4	53.4
Haywood	563	49.1	52.6	50.9
Henderson	820	50.5	53.2	51.9
Jackson	290	50.0	52.9	51.5
Macon	289	46.6	52.9	49.8
Madison	191	45.0	50.0	47.6
McDowell	487	46.1	49.2	47.7
Mitchell	188	47.8	53.2	50.5
Polk	166	49.9	52.5	51.2
Rutherford	759	46.1	49.8	48.0
Swain	125	50.4	53.2	51.8
Transylvania	311	49.0	54.0	51.5
Yancey	162	49.0	51.5	50.3

Northwest Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Alexander	360	46.9	49.9	48.5
Alleghany	108	47.1	51.2	49.2
Ashe	270	48.5	51.2	49.9
Avery	179	48.6	51.6	50.1
Burke	1,023	47.2	50.3	48.8
Caldwell	855	47.6	51.0	49.4
Catawba	1,105	47.7	52.1	50.0
Hickory City	305	47.5	51.5	49.6
Newton-Conover	205	46.7	49.4	48.2
Davidson	1,316	47.1	50.6	48.9
Lexington City	224	42.8	46.8	44.9
Thomasville City	148	44.2	46.5	45.4
Davie	374	48.2	51.5	49.9
Forsyth	2,859	47.8	51.1	49.5
Iredell-Statesville	1,096	47.3	50.4	48.9
Mooresville City	244	50.2	52.3	51.3
Stokes	528	48.6	50.0	49.3
Surry	627	46.9	51.0	49.0
Elkin City	90	52.7	55.1	53.8
Mount Airy City	140	48.6	52.9	50.8
Watauga	377	51.2	55.0	53.1
Wilkes	766	48.0	51.2	49.6
Yadkin	392	49.4	50.9	50.2

Table 5. 1996-97 North Carolina Open-Ended Assessment
Mean Scale Scores
Grade 8
Region by LEA

Southwest Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Anson	302	42.8	45.1	44.0
Cabarrus	1,238	48.8	52.4	50.6
Kannapolis City	300	45.9	48.5	47.2
Cleveland	680	45.8	49.8	47.9
Kings Mountain	289	46.7	48.8	47.8
Shelby City	238	46.8	50.6	48.8
Gaston	2,219	45.0	48.6	46.9
Hoke	422	41.2	44.6	43.0
Lincoln	731	47.8	50.3	49.1
Mecklenburg	6,309	45.4	49.1	47.3
Montgomery	324	45.3	49.1	47.3
Moore	736	47.0	50.2	48.7
Richmond	644	44.0	45.5	44.8
Rowan	1,387	46.1	49.7	48.0
Scotland	523	45.7	47.2	46.5
Stanly	543	48.3	51.9	50.1
Albemarle City	166	46.4	49.3	47.9
Union	1,361	48.2	51.4	49.9

Northeast Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Beaufort	519	47.3	49.7	48.6
Bertie	320	41.6	44.3	43.1
Camden	86	45.2	49.4	47.4
Chowan	178	44.5	47.2	45.9
Currituck	246	45.6	50.3	48.0
Dare	335	52.5	54.1	53.4
Edgecombe	562	45.9	47.7	46.8
Gates	147	43.6	45.6	44.7
Halifax	443	39.8	43.3	41.7
Roanoke Rapids City	222	46.9	51.6	49.2
Weldon City	76	39.3	41.3	40.4
Hertford	334	42.0	44.5	43.3
Hyde	75	46.1	49.1	47.7
Martin	377	45.7	46.7	46.3
Northampton	282	42.9	45.4	44.3
Pasquotank	458	47.3	48.5	47.9
Perquimans	137	40.8	46.7	43.9
Pitt	1,347	46.2	48.9	47.6
Tyrrell	53	43.7	47.4	45.6
Washington	197	40.9	45.6	43.3

Table 6. 1996-97 North Carolina Open-Ended Assessment
Mean Scale Scores
Grade 8
Region by LEA

Southeast Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Bladen	435	45.1	46.7	46.0
Brunswick	704	46.7	49.4	48.1
Carteret	668	46.6	51.1	48.9
Columbus	542	43.8	47.1	45.5
Whiteville City	198	46.9	50.4	48.7
Craven	1,093	46.4	50.0	48.3
Cumberland	3,639	46.4	48.1	47.3
Duplin	553	46.5	48.5	47.6
Greene	239	44.4	46.6	45.6
Jones	126	43.7	43.7	43.8
Lenoir	766	47.4	48.8	48.1
New Hanover	1,486	48.2	52.0	50.2
Onslow	1,597	46.3	50.4	48.4
Pamlico	177	44.2	49.8	47.1
Pender	461	46.3	49.0	47.7
Robeson	1,667	42.4	46.4	44.5
Sampson	528	45.3	47.7	46.6
Clinton City	187	44.7	47.7	46.3
Wayne	1,364	44.9	47.4	46.2

Central Region

	Number Tested	Reading Scale Score	Mathematics Scale Score	Total Scale Score
Alamance	1,285	47.4	50.4	49.0
Caswell	275	46.0	47.1	46.6
Chatham	457	50.1	51.2	50.7
Durham	1,947	45.5	49.0	47.3
Franklin	489	44.7	47.0	45.9
Granville	517	46.2	49.1	47.7
Guilford	4,041	46.6	50.3	48.5
Harnett	1,014	46.0	48.8	47.5
Johnston	1,252	48.5	51.0	49.8
Lee	632	47.5	49.6	48.6
Nash/Rocky Mount	1,306	46.5	48.1	47.4
Orange	386	46.4	49.3	47.8
Chapel Hill City	627	53.2	57.6	55.4
Person	418	44.8	49.3	47.2
Randolph	1,102	48.5	51.2	49.9
Asheboro City	247	49.1	51.7	50.4
Rockingham	1,000	47.6	49.5	48.6
Vance	471	41.8	46.5	44.2
Wake	6,121	48.8	54.0	51.4
Warren	267	44.2	45.5	44.9
Wilson	882	44.7	48.1	46.5

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North Carolina

Open-Ended Assessment

Grades 5 and 8

LEA Performance

Tables 7 and 8 provide stem and leaf plots that depict the total mean scale score performance for each of the LEAs rounded up to the nearest two-tenths of a point. Statistics are provided for grades 5 and 8.

Table 7. 1996-97 North Carolina Open-Ended Assessment
Grade 5 Total Mean Scale Scores*
By LEA

State		1996-97 LEA Performance
	54.4	
	54.2	
	54.0	Chapel Hill City
	53.8	
	53.6	
	53.4	Avery
	53.2	Watauga
	53.0	
	52.8	
	52.6	
	52.4	
	52.2	
	52.0	
	51.8	Alleghany
	51.6	Transylvania
	51.4	
	51.2	
	51.0	Buncombe, Clay
	50.8	Henderson, Swain
	50.6	Polk
	50.4	Wake, Union
	50.2	Jackson, Mount Airy City, Burke, Dare
	50.0	
	49.8	New Hanover, Asheboro City, Surry, Currituck
	49.6	Haywood, Pamlico, Macon, Mitchell
	49.4	
	49.2	Yadkin, Stanly, Craven
	49.0	Graham, Elkin City
	48.8	Forsyth, Wilkes, Guilford, Stokes, Cabarrus
	48.6	Whiteville City, Davie, Mooresville City, Lincoln
	48.4	Yancey
	48.2	Catawba, Hickory City, Kings Mountain, Shelby City, Caldwell, Alamance
	48.0	Jones
	47.8	Newton-Conover
1996-97 State	47.6	Cherokee, Mecklenburg, Roanoke Rapids City, Chatham
	47.4	McDowell, Davidson, Pender, Johnston, Orange
	47.2	Beaufort, Onslow, Lee, Moore, Caswell, Nash/Rocky Mount, Randolph
	47.0	Ashe, Carteret, Granville, Alexander, Cumberland
	46.8	Camden, Madison
	46.6	Albemarle City, Durham, Rutherford, Person
	46.4	Asheville City, Cleveland, Martin, Rockingham
	46.2	Iredell-Statesville, Lenoir, Sampson
	46.0	Clinton City, Halifax, Pitt
	45.8	Anson, Pasquotank
	45.6	Lexington City, Gates, Duplin, Bladen
	45.4	Gaston, Wayne
	45.2	Rowan, Chowan
	45.0	Hertford, Hyde, Brunswick, Columbus
	44.8	Harnett, Scotland
	44.6	Edgecombe
	44.4	Washington, Franklin, Kannapolis City
	44.2	Richmond, Wilson, Greene
	44.0	
	43.8	Thomasville City, Hoke, Tyrrell, Montgomery, Weldon City
	43.6	Perquimans
	43.4	Robeson
	43.2	
	43.0	Vance
	42.8	Northampton
	42.6	
	42.4	Bertie
	42.2	Warren
	42.0	

*Scale Scores are rounded up to the nearest two-tenths of a point.

Table 8. 1996-97 North Carolina Open-Ended Assessment Grade 8 Total Mean Scale Scores* By LEA

State		1996-97 LEA Performance
	55.4	Chapel Hill City
	...	
	53.8	Elkin City
	53.6	
	53.4	Graham, Dare
	53.2	Watauga
	...	
	52.6	Buncombe
	52.4	
	52.2	
	52.0	Henderson
	51.8	Swain
	51.6	Jackson, Transylvania
	51.4	Mooresville City, Wake
	51.2	Polk
	51.0	Cherokee, Clay, Haywood
	50.8	Chatham, Mount Airy City
	50.6	Mitchell, Cabarrus
	50.4	Yancey, Asheville City, Asheboro City
	50.2	Avery, Stanly, Yadkin, New Hanover
	50.0	Ashe, Davie, Union, Randolph, Catawba
	49.8	Macon, Johnston
	49.6	Forsyth, Hickory City, Wilkes
	49.4	Stokes, Caldwell
	49.2	Lincoln, Alleghany, Roanoke Rapids
1996-97 State	49.0	Davidson, Iredell-Statesville, Carteret, Surry, Alamance
	48.8	Moore, Whiteville City, Burke, Shelby City
	48.6	Alexander, Guilford, Beaufort, Lee, Rockingham
	48.4	Craven, Onslow
	48.2	Brunswick, Lenoir, Newton-Conover
	48.0	Cleveland, Albemarle City, Pasquotank, Rutherford, Rowan, Currituck
	47.8	McDowell, Hyde, Pender, Granville, Kings Mountain, Orange
	47.6	Harnett, Madison, Pitt, Duplin
	47.4	Mecklenburg, Montgomery, Cumberland, Durham, Camden, Nash/Rocky Mount
	47.2	Pamlico, Kannapolis City, Person
	47.0	Gaston
	46.8	Edgecombe
	46.6	Scotland, Wilson, Sampson, Caswell
	46.4	Martin, Clinton City
	46.2	Wayne
	46.0	Chowan, Franklin, Bladen
	45.8	
	45.6	Columbus, Tyrrell, Greene
	45.4	Thomasville City
	45.2	
	45.0	Lexington City, Warren
	44.8	Gates, Richmond
	44.6	Robeson
	44.4	Northampton
	44.2	Vance
	44.0	Perquimans, Anson
	43.8	Jones
	43.6	
	43.4	Hertford, Washington
	43.2	Bertie
	43.0	Hoke
	42.8	
	42.6	
	42.4	
	42.2	
	42.0	
	41.8	Halifax
	...	
	40.4	Weldon City

*Scale Scores are rounded up to the nearest two-tenths of a point.

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Open-Ended Assessment

Grades 5 and 8

State-Level Score-Point Distributions

Table 9 provides the state-level score-point distributions by item for each of the items on the tests. Statistics are provided for reading and mathematics for grades 5 and 8.

Table 9. 1996-97 North Carolina Open-Ended Assessment Score Point Distribution by Item

GRADE 5

Reading

	0	1	2	3
Item 1 (0-3)	20%	52%	23%	4%
Item 2 (0-2)	19%	60%	21%	
Item 3 (0-2)	18%	61%	21%	
Item 4 (0-3)	7%	63%	28%	2%
Item 5 (0-2)	7%	68%	25%	
Item 6 (0-3)	23%	64%	12%	1%

Mathematics

	0	1	2	3
Item 7 (0-3)	81%	11%	4%	4%
Item 8 (0-3)	35%	30%	23%	12%
Item 9 (0-3)	51%	21%	13%	14%
Item 10 (0-3)	51%	32%	11%	6%
Item 11 (0-1)	73%	27%		
Item 12 (0-3)	60%	5%	33%	2%

GRADE 8

Reading

	0	1	2	3
Item 1 (0-3)	5%	49%	39%	7%
Item 2 (0-3)	9%	49%	38%	3%
Item 3 (0-3)	13%	59%	25%	3%
Item 4 (0-3)	5%	59%	33%	3%
Item 5 (0-3)	4%	59%	34%	3%
Item 6 (0-3)	5%	62%	29%	4%

Mathematics

	0	1	2	3
Item 7 (0-2)	55%	9%	37%	
Item 8 (0-2)	46%	31%	24%	
Item 9 (0-3)	45%	25%	23%	7%
Item 10 (0-3)	54%	24%	10%	13%
Item 11 (0-3)	52%	37%	5%	6%
Item 12 (0-2)	69%	14%	17%	

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Open-Ended Assessment

Grades 5 and 8

Goals and Thinking Skills Measured

Table 10 provides the reading and mathematics goals described in the North Carolina *Standard Course of Study* measured by each of the items on the tests. In addition, the thinking skills measured by each of the items are provided. Goals and thinking skills measured by the items are provided for reading and mathematics for grades 5 and 8.

Table 10. 1996-97 North Carolina Open-Ended Assessment Goal from the North Carolina *Standard Course of Study* Measured by Each Test Item*

Grade 5

Item	Goal
1	*Communications Skills Goal 2.* Use language for the acquisition, interpretation, and application of information. (Evaluating)
2	*Communications Skills Goal 2.* Use language for the acquisition, interpretation, and application of information. (Evaluating)
3	*Communications Skills Goal 2.* Use language for the acquisition, interpretation, and application of information. (Evaluating)
4	*Communications Skills Goal 3.* Use language for critical analysis and evaluation. (Evaluating)
5	*Communications Skills Goal 4.* Use language for aesthetic and personal response. (Evaluating)
6	*Communications Skills Goal 4.* Use language for aesthetic and personal response. (Evaluating)
7	*Mathematics Goal 6.* Demonstrate an understanding and use of graphing, probability, and statistics. (Applying)
8	*Mathematics Goal 6.* Demonstrate an understanding and use of graphing, probability, and statistics. (Applying)
9	*Mathematics Goal 6.* Demonstrate an understanding and use of graphing, probability, and statistics. (Evaluating)
10	*Mathematics Goal 4.* Understand and use standard units of metric and customary measure. (Application)
11	*Mathematics Goal 7.* Compute with rational numbers. (Applying)
12	*Mathematics Goal 5.* Solve problems and reason mathematically. (Analyzing)

Grade 8

Item	Goal
1	*Communications Skills Goal 2.* Use language for the acquisition, interpretation, and application of information. (Analyzing)
2	*Communications Skills Goal 3.* Use language for critical analysis and evaluation. (Evaluating)
3	*Communications Skills Goal 4.* Use language for aesthetic and personal response. (Evaluating)
4	*Communications Skills Goal 3.* Use language for critical analysis and evaluation. (Evaluating)
5	*Communications Skills Goal 4.* Use language for aesthetic and personal response. (Generating)
6	*Communications Skills Goal 2.* Use language for the acquisition, interpretation, and application of information. (Generating)
7	*Mathematics Goal 4.* Demonstrate an understanding and use of measurement. (Analyzing)
8	*Mathematics Goal 4.* Demonstrate an understanding and use of measurement. (Analyzing)
9	*Mathematics Goal 5.* Solve problems and reason mathematically. (Applying)
10	*Mathematics Goal 5.* Solve problems and reason mathematically. (Analyzing)
11	*Mathematics Goal 7.* Compute real numbers. (Generating)
12	*Mathematics Goal 3.* Demonstrate an understanding of patterns, relationships, and pre-algebra. (Evaluating)

*The thinking skill measured by the item is enclosed in parenthesis after each goal.

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Open-Ended Assessment

Grades 5 and 8

State-Level Summary Statistics
Frequency Distributions and Percentiles

The following charts provide state-level summary statistics including frequency distributions and percentile ranks. The number tested at each grade level, the number of students achieving each of the possible scale scores, the standard deviations, and the percentiles are provided. Summary statistics are provided for reading, mathematics, and the total score for grades 5 and 8.

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 5 Reading

NUMBER OF STUDENTS WITH VALID SCORES	89,352	HIGH SCORE	80
		LOW SCORE	15
		LOCAL	OPEN-ENDED
MEAN	45.2	PERCENTILES	SCALE
		90	59.0
STANDARD		75	51.2
DEVIATION	11.6	50 (MEDIAN)	42.4
		25	35.4
VARIANCE	133.9	10	28.0

FREQUENCY DISTRIBUTION

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
80	49	89352	0.1	100.0	99
79	0	89303	0.0	99.9	99
78	0	89303	0.0	99.9	99
77	235	89303	0.3	99.9	99
76	0	89068	0.0	99.7	99
75	0	89068	0.0	99.7	99
74	0	89068	0.0	99.7	99
73	0	89068	0.0	99.7	99
72	717	89068	0.8	99.7	99
71	0	88351	0.0	98.9	99
70	0	88351	0.0	98.9	99
69	0	88351	0.0	98.9	98
68	1708	88351	1.9	98.9	98
67	0	86643	0.0	96.9	98
66	0	86643	0.0	96.9	97
65	0	86643	0.0	96.9	97
64	3166	86643	3.5	96.9	96
63	0	83477	0.0	93.4	95
62	0	83477	0.0	93.4	94
61	5191	83477	5.8	93.4	93
60	0	78286	0.0	87.6	92
59	0	78286	0.0	87.6	90
58	0	78286	0.0	87.6	89
57	7368	78286	8.2	87.6	87
56	0	70918	0.0	79.3	86
55	0	70918	0.0	79.3	83
54	0	70918	0.0	79.3	81
53	10042	70918	11.2	79.3	79
52	0	60876	0.0	68.1	77
51	0	60876	0.0	68.1	75
50	0	60876	0.0	68.1	72
49	0	60876	0.0	68.1	70
48	13488	60876	15.1	68.1	68
47	0	47388	0.0	53.0	65
46	0	47388	0.0	53.0	62
45	0	47388	0.0	53.0	59
44	0	47388	0.0	53.0	56
43	16999	47388	19.0	53.0	53
42	0	30389	0.0	34.0	48
41	0	30389	0.0	34.0	44
40	0	30389	0.0	34.0	39
39	13212	30389	14.8	34.0	34
38	0	17177	0.0	19.2	32
37	0	17177	0.0	19.2	29
36	0	17177	0.0	19.2	27
35	0	17177	0.0	19.2	24

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 5 Reading

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
34	0	17177	0.0	19.2	22
33	7998	17177	8.9	19.2	19
32	0	9179	0.0	10.3	17
31	0	9179	0.0	10.3	15
30	0	9179	0.0	10.3	14
29	0	9179	0.0	10.3	12
28	4467	9179	5.0	10.3	10
27	0	4712	0.0	5.3	9
26	0	4712	0.0	5.3	8
25	0	4712	0.0	5.3	7
24	0	4712	0.0	5.3	6
23	2346	4712	2.6	5.3	5
22	0	2366	0.0	2.6	4
21	0	2366	0.0	2.6	4
20	0	2366	0.0	2.6	3
19	1391	2366	1.6	2.6	2
18	0	975	0.0	1.1	2
17	0	975	0.0	1.1	2
16	0	975	0.0	1.1	1
15	975	975	1.1	1.1	1

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 5 Mathematics

NUMBER OF STUDENTS WITH VALID SCORES	89,352	HIGH SCORE	81
		LOW SCORE	36
		LOCAL	OPEN-ENDED
MEAN	49.9	PERCENTILES	SCALE
		90	60.5
STANDARD		75	55.3
DEVIATION	8.8	50 (MEDIAN)	48.3
		25	42.0
VARIANCE	77.8	10	

FREQUENCY DISTRIBUTION

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
81	41	89352	0.0	100.0	99
80	0	89311	0.0	99.9	99
79	0	89311	0.0	99.9	99
78	0	89311	0.0	99.9	99
77	122	89311	0.1	99.9	99
76	0	89189	0.0	99.8	99
75	0	89189	0.0	99.8	99
74	288	89189	0.3	99.8	99
73	0	88901	0.0	99.5	99
72	0	88901	0.0	99.5	99
71	638	88901	0.7	99.5	99
70	0	88263	0.0	98.8	99
69	988	88263	1.1	98.8	98
68	0	87275	0.0	97.6	98
67	1596	87275	1.8	97.6	97
66	0	85679	0.0	95.9	96
65	2530	85679	2.8	95.9	95
64	0	83149	0.0	93.0	94
63	0	83149	0.0	93.0	94
62	3503	83149	3.9	93.0	93
61	0	79646	0.0	89.1	91
60	4582	79646	5.1	89.1	89
59	0	75064	0.0	84.0	87
58	5866	75064	6.6	84.0	84
57	0	69198	0.0	77.4	81
56	7147	69198	8.0	77.4	77
55	0	62051	0.0	69.4	74
54	0	62051	0.0	69.4	72
53	8393	62051	9.4	69.4	69
52	0	53658	0.0	60.0	65
51	9421	53658	10.5	60.0	60
50	0	44237	0.0	49.5	56
49	0	44237	0.0	49.5	53
48	10224	44237	11.4	49.5	49
47	0	34013	0.0	38.1	45
46	0	34013	0.0	38.1	42
45	10926	34013	12.2	38.1	38
44	0	23087	0.0	25.8	34
43	0	23087	0.0	25.8	29
42	11591	23087	13.0	25.8	25
41	0	11496	0.0	12.9	23
40	0	11496	0.0	12.9	21
39	0	11496	0.0	12.9	19
38	0	11496	0.0	12.9	16
37	0	11496	0.0	12.9	14
36	11496	11496	12.9	12.9	12

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 5 Total Scale Scores

NUMBER OF STUDENTS WITH VALID SCORES	89,352	HIGH SCORE	80
		LOW SCORE	25
MEAN	47.5	LOCAL PERCENTILES	OPEN-ENDED SCALE
		90	59.0
STANDARD DEVIATION	9.0	75	53.3
		50 (MEDIAN)	47.0
		25	41.4
VARIANCE	81.4	10	36.0

FREQUENCY DISTRIBUTION

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
80	1	89352	0.0	100.0	99
79	4	89351	0.0	100.0	99
78	0	89347	0.0	100.0	99
77	18	89347	0.0	100.0	99
76	1	89329	0.0	99.9	99
75	36	89328	0.0	99.9	99
74	18	89292	0.0	99.9	99
73	82	89274	0.1	99.9	99
72	65	89192	0.1	99.8	99
71	150	89127	0.2	99.7	99
70	176	88977	0.2	99.6	99
69	168	88801	0.2	99.4	99
68	319	88633	0.4	99.2	99
67	302	88314	0.3	98.8	98
66	566	88012	0.6	98.5	98
65	765	87446	0.9	97.8	97
64	631	86681	0.7	97.0	97
63	1044	86050	1.2	96.3	96
62	1335	85006	1.5	95.1	95
61	1094	83671	1.2	93.6	93
60	1848	82577	2.1	92.4	92
59	2056	80729	2.3	90.3	90
58	1707	78673	1.9	88.0	88
57	2599	76966	2.9	86.1	86
56	1645	74367	1.8	83.2	83
55	2695	72722	3.0	81.4	81
54	3524	70027	3.9	78.4	78
53	3213	66503	3.6	74.4	74
52	4043	63290	4.5	70.8	70
51	3649	59247	4.1	66.3	66
50	4337	55598	4.9	62.2	62
49	1786	51261	2.0	57.4	57
48	4133	49475	4.6	55.4	55
47	5429	45342	6.1	50.7	50
46	4004	39913	4.5	44.7	44
45	2894	35909	3.2	40.2	40
44	3262	33015	3.6	36.9	36
43	4651	29753	5.2	33.3	33
42	3915	25102	4.4	28.1	28
41	1172	21187	1.3	23.7	23
40	2430	20015	2.7	22.4	22
39	3492	17585	3.9	19.7	19
38	2249	14093	2.5	15.8	15
37	2175	11844	2.4	13.3	13
36	880	9669	1.0	10.8	10
35	1134	8789	1.3	9.8	9
34	2177	7655	2.4	8.6	8
33	667	5478	0.7	6.1	6
32	1657	4811	1.9	5.4	5
31	25	3154	0.0	3.5	3
30	437	3129	0.5	3.5	3
29	1075	2692	1.2	3.0	3
28	179	1617	0.2	1.8	1
27	757	1438	0.8	1.6	1
26	0	681	0.0	0.8	1
25	681	681	0.8	0.8	1

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 8 Reading

NUMBER OF STUDENTS WITH VALID SCORES	86,479	HIGH SCORE	79
		LOW SCORE	12
		LOCAL PERCENTILES	OPEN-ENDED SCALE
MEAN	46.8	90	57.6
		75	52.2
STANDARD DEVIATION	10.0	50 (MEDIAN)	45.5
		25	38.4
VARIANCE	100.9	10	31.9

FREQUENCY DISTRIBUTION

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
79	27	86479	0.0	99.9	99
78	0	86452	0.0	99.9	99
77	0	86452	0.0	99.9	99
76	0	86452	0.0	99.9	99
75	93	86452	0.1	99.9	99
74	0	86359	0.0	99.8	99
73	0	86359	0.0	99.8	99
72	263	86359	0.3	99.8	99
71	0	86096	0.0	99.5	99
70	0	86096	0.0	99.5	99
69	614	86096	0.7	99.5	99
68	0	85482	0.0	98.7	99
67	0	85482	0.0	98.7	98
66	1306	85482	1.5	98.7	98
65	0	84176	0.0	97.2	98
64	0	84176	0.0	97.2	97
63	2539	84176	2.8	97.2	97
62	0	81637	0.0	94.3	96
61	0	81637	0.0	94.3	95
60	4659	81637	5.2	94.3	94
59	0	76978	0.0	88.9	92
58	0	76978	0.0	88.9	91
57	6737	76978	7.5	88.9	89
56	0	70241	0.0	81.1	86
55	0	70241	0.0	81.1	84
54	8610	70241	9.6	81.1	81
53	0	61631	0.0	71.2	78
52	0	61631	0.0	71.2	74
51	10459	61631	11.7	71.2	71
50	0	51172	0.0	59.1	67
49	0	51172	0.0	59.1	63
48	12079	51172	13.5	59.1	59
47	0	39093	0.0	45.2	56
46	0	39093	0.0	45.2	52
45	0	39093	0.0	45.2	49
44	13146	39093	14.7	45.2	45
43	0	25947	0.0	30.0	41
42	0	25947	0.0	30.0	38
41	0	25947	0.0	30.0	34
40	12875	25947	14.4	30.0	30
39	0	13072	0.0	15.1	27
38	0	13072	0.0	15.1	24
37	0	13072	0.0	15.1	21
36	0	13072	0.0	15.1	18
35	6674	13072	7.5	15.1	15
34	0	6398	0.0	7.4	13
33	0	6398	0.0	7.4	12
32	0	6398	0.0	7.4	10
31	0	6398	0.0	7.4	9
30	3030	6398	3.4	7.4	7

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 8 Reading

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
29	0	3368	0.0	3.9	6
28	0	3368	0.0	3.9	5
27	0	3368	0.0	3.9	5
26	0	3368	0.0	3.9	4
25	1523	3368	1.7	3.9	3
24	0	1845	0.0	2.1	3
23	0	1845	0.0	2.1	3
22	0	1845	0.0	2.1	2
21	845	1845	0.9	2.1	2
20	0	1000	0.0	1.2	2
19	0	1000	0.0	1.2	2
18	0	1000	0.0	1.2	1
17	0	1000	0.0	1.2	1
16	506	1000	0.6	1.2	1
15	0	494	0.0	0.6	1
14	0	494	0.0	0.6	1
13	0	494	0.0	0.6	1
12	494	494	0.6	0.6	1

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 8 Mathematics

NUMBER OF STUDENTS WITH VALID SCORES	86,479	HIGH SCORE	78
		LOW SCORE	35
		LOCAL	OPEN-ENDED
MEAN	50.0	PERCENTILES	SCALE
		90	63.5
STANDARD		75	56.2
DEVIATION	10.3	50 (MEDIAN)	47.7
		25	40.9
VARIANCE	106.1	10	

FREQUENCY DISTRIBUTION

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
78	413	86479	0.5	99.9	99
77	0	86066	0.0	99.4	99
76	0	86066	0.0	99.4	99
75	0	86066	0.0	99.4	99
74	784	86066	0.9	99.4	99
73	0	85282	0.0	98.5	99
72	1441	85282	1.7	98.5	98
71	0	83841	0.0	96.8	97
70	0	83841	0.0	96.8	97
69	2073	83841	2.4	96.8	96
68	0	81768	0.0	94.5	95
67	2670	81768	3.1	94.5	94
66	0	79098	0.0	91.4	93
65	0	79098	0.0	91.4	92
64	3269	79098	3.8	91.4	91
63	0	75829	0.0	87.6	89
62	3970	75829	4.6	87.6	87
61	0	71859	0.0	83.0	85
60	4379	71859	5.1	83.0	83
59	0	67480	0.0	78.0	81
58	0	67480	0.0	78.0	80
57	5250	67480	6.1	78.0	78
56	0	62230	0.0	71.9	75
55	5894	62230	6.8	71.9	71
54	0	56336	0.0	65.1	68
53	6670	56336	7.7	65.1	65
52	0	49666	0.0	57.4	62
51	0	49666	0.0	57.4	60
50	7537	49666	8.7	57.4	57
49	0	42129	0.0	48.7	54
48	0	42129	0.0	48.7	51
47	8493	42129	9.8	48.7	48
46	0	33636	0.0	38.9	45
45	0	33636	0.0	38.9	41
44	9641	33636	11.1	38.9	38
43	0	23995	0.0	27.7	33
42	10872	23995	12.6	27.7	27
41	0	13123	0.0	15.2	25
40	0	13123	0.0	15.2	24
39	0	13123	0.0	15.2	22
38	0	13123	0.0	15.2	20
37	0	13123	0.0	15.2	18
36	0	13123	0.0	15.2	17
35	13123	13123	15.2	15.2	15

North Carolina End-of-Grade Testing Program 1996-97
Open-Ended - Grade 8 Total Scale Scores

NUMBER OF STUDENTS WITH VALID SCORES	86,479	HIGH SCORE	78
		LOW SCORE	24
		LOCAL PERCENTILES	OPEN-ENDED SCALE
MEAN	48.5	90	60.0
STANDARD DEVIATION	9.1	75	54.5
		50 (MEDIAN)	48.0
		25	41.8
VARIANCE	82.7	10	37.2

FREQUENCY DISTRIBUTION

SCALE SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	PERCENTILE
78	2	86479	0.0	96.8	99
77	9	86477	0.0	96.8	99
76	1	86468	0.0	96.7	99
75	25	86467	0.0	96.7	99
74	21	86442	0.0	96.7	99
73	61	86421	0.1	96.7	99
72	127	86360	0.1	96.6	99
71	43	86233	0.0	96.5	99
70	186	86190	0.2	96.4	99
69	437	86004	0.5	96.2	99
68	125	85567	0.1	95.7	98
67	629	85442	0.7	95.6	98
66	831	84813	0.9	94.9	98
65	785	83982	0.9	94.0	97
64	658	83197	0.7	93.1	96
63	1564	82539	1.7	92.3	95
62	1764	80975	2.0	90.6	93
61	1358	79211	1.5	88.6	91
60	2210	77853	2.5	87.1	90
59	1816	75643	2.0	84.6	87
58	2064	73827	2.3	82.6	85
57	2767	71763	3.1	80.3	82
56	2350	68996	2.6	77.2	79
55	3289	66646	3.7	74.6	77
54	2555	63357	2.9	70.9	73
53	3179	60802	3.6	68.0	70
52	4282	57623	4.8	64.5	66
51	2895	53341	3.2	59.7	61
50	2701	50446	3.0	56.4	58
49	3777	47745	4.2	53.4	55
48	3714	43968	4.2	49.2	50
47	2514	40254	2.8	45.0	46
46	5101	37740	5.7	42.2	43
45	2897	32639	3.2	36.5	37
44	3815	29742	4.3	33.3	34
43	2617	25927	2.9	29.0	29
42	3537	23310	4.0	26.1	26
41	3490	19773	3.9	22.1	22
40	2037	16283	2.3	18.2	18
39	1036	14246	1.2	15.9	16
38	4882	13210	5.5	14.8	15
37	424	8328	0.5	9.3	9
36	793	7904	0.9	8.8	9
35	2420	7111	2.7	8.0	8
34	166	4691	0.2	5.2	5
33	1846	4525	2.1	5.1	5
32	65	2679	0.1	3.0	3
31	161	2614	0.2	2.9	3
30	927	2453	1.0	2.7	2
29	67	1526	0.1	1.7	1
28	597	1459	0.7	1.6	1
27	30	862	0.0	1.0	1
26	391	832	0.4	0.9	1
25	0	441	0.0	0.5	1
24	441	441	0.5	0.5	1

1996-97

North Carolina

Open-Ended Assessment

Grades 5 and 8

Copies of the Grades 5 and 8 Open-Ended Tests

The following pages provide copies of the Open-Ended Assessment instruments administered to students in grades 5 and 8 during the 1996-97 school year. State-level score-point distributions have been provided for each item on the test for each grade level.

SIDE 1

North Carolina Open-Ended Assessment
Grade 5
1996-97

School Name

Teacher Name

1. What is your sex?
   - ○ Male
   - ○ Female

2. What is your ethnic group?
   - ○ American Indian
   - ○ Asian
   - ○ Black
   - ○ Hispanic
   - ○ Multi-racial
   - ○ White
   - ○ Other

Student's Last Name | First Name

1996-97 North Carolina Open-Ended Assessment Student Performance at Grade 5

The number of possible score points for each test item is depicted along with the percentage of students statewide achieving each of the scores.

Pages containing only test items may be reproduced at the local level. Do not reproduce reading passages because of copyright restrictions.

DO NOT WRITE IN THIS AREA

TO BE COMPLETED BY THE TEACHER OR COUNSELOR

1. Is this student following the North Carolina *Standard Course of Study*?
   - ○ Yes ○ No
2. Is this student participating in an IASA Title I Program this year? [If yes, mark the choice or choices that most accurately describe(s) the program.]
   - ○ No
   - ○ Yes, School-Wide Program
   - ○ Yes, Targeted Assistance Program
   - ○ Yes, Migrant Program

3. Student Date of Birth

MONTH	DAY	YEAR
Jan (1)		○1981
Feb (2)		○1982
Mar (3)	(0)(0)	○1983
Apr (4)	(1)(1)	○1984
May (5)	(2)(2)	○1985
Jun (6)	(3)(3)	○1986
Jul (7)	(4)	○1987
Aug (8)	(5)	○1988
Sep (9)	(6)	○1989
Oct (10)	(7)	○1990
Nov (11)	(8)	○1991
Dec (12)	(9)	○Other

4. Social Security or Alternative SIMS Social Security Number

3. Indicate whether or not this student is currently identified as exceptional in accordance with the state regulations *Procedures Governing Programs and Services for Children with Special Needs.* (Choose one of the following.)
   - ○ Not identified as an Exceptional Student
   - ○ Academically Gifted
   - ○ Behaviorally-Emotionally Handicapped
   - ○ Hearing Impaired
   - ○ Educable Mentally Handicapped
   - ○ Specific Learning Disabled
   - ○ Speech-Language Impaired
   - ○ Visually Impaired
   - ○ Other Health Impaired
   - ○ Orthopedically Impaired
   - ○ Traumatic Brain Injured
   - ○ Other Exceptional Classifications
4. Mark any of the following which apply to this student.
   - ○ Limited English Proficiency
   - ○ Learning Disabled - Reading
   - ○ Learning Disabled - Mathematics
   - ○ Learning Disabled - Written Expression
   - ○ Learning Disabled - Other
5. Which, if any, of the following modifications are being used by this student during this test administration? (Mark all that apply.)
   - ○ Braille Edition
   - ○ Large Print Edition
   - ○ Assistive Technology
   - ○ Braille Writer
   - ○ Cranmer Abacus
   - ○ Dictation to Scribe
   - ○ Interpreter Signs Test
   - ○ Magnification Devices
   - ○ Student Marks in Test Book
   - ○ Test Administrator Reads Test Aloud (in English)
   - ○ Use of Typewriter or Word Processor
   - ○ Hospital/Home Testing
   - ○ Multiple Test Sessions
   - ○ Scheduled Expanded Time
   - ○ Testing in a Separate Room
   - ○ English/Native Language Dictionary or English/Native Electronic Transfer
   - ○ Other

SPECIAL CODES FOR SCHOOL USE ONLY

The passage below is about what happened when three boys went for a ride in an airboat in the Florida Everglades. Read the passage and answer the questions.

As darkness fell, the boys prepared to go frogging. Jeff was offered one of Billie's long-sleeved jackets to keep mosquitoes off his arms, and he chose the one with the red and yellow stripes.

It was a warm night for November. With spears and buckets, the three boys set out in the airboat toward the lagoon in the mangrove swamp where the frogs swam about in the water or sat on the rocks, croaking their grumpy night songs. Jeff looked all around, wide-eyed, as though at any moment creatures of the swamp might rise up out of the dark water and surprise him.

Slowly the boat moved in on the rocks where the frogs sat stunned as the light overpowered them. Billie nodded to Charlie when he had the light trained just so. *Whup!* Charlie moved so swiftly that the suddenness of his throw startled Jeff. Instantly the spear was retrieved with a frog on the end of it, and again the spear flashed out in the gleam of the light and got another.

"Can I try?" Jeff shouted. Billie cut off the motor.

"Hold it like this," he said, showing Jeff how to grip the spear. "Aim it, and throw."

"Now!" said Charlie.

Jeff stood for a moment, aiming it carefully as he had seen Charlie do, then—*whup*.

It happened so quickly that none of the boys knew quite how, but somehow Jeff went along with the spear and into the two-foot deep water as the boat bobbed back and forth and the frogs scattered in all directions.

Billie looked over the side of the boat to see Jeff groping up out of the mud, and he threw back his head in a shriek of laughter.

Suddenly it turned to a scream. There was a roaring hiss from the trees on the bank, and an alligator rushed toward them. Even before Billie had seen the length of the tail and the huge body, he knew it was the Big One. He remembered that deep hiss, that seemed to shake the flesh off one's bones, like wind in a cavern. He yelled at Jeff to get into the boat.

With lightning speed the huge 'gator came crashing through the underbrush, the wind rushing out of the huge mouth with rows and rows of dagger teeth, and the boys screamed together in terror, Jeff loudest of all as he tried to get to his feet in the muck.

"The light, Billie, the light!" Charlie yelled, scrambling to get the motor started again.

Never had Billie's fingers felt so much like thumbs. Desperately he struggled to turn the light in the eyes of the beast, but it didn't seem to move. Frantically he picked up a spear, just as Jeff dived headlong into the boat, one muddy foot kicking Billie's hand and knocking the spear into the water. With a roar the motor caught and rose higher and higher as the airboat tipped this way and that and Charlie tried to get it pointed into the open water again.

The Big One charged. *Whop*, went the tail against the side of the boat, and the small craft spun crazily around, as though it were caught in a whirlpool. *Whop*, went the tail again, and the boys fell against each other.

Again Billie grabbed the light and this time it pivoted directly into the alligator's eyes. The monster seemed to freeze in confusion, still hissing, and then, from behind the huge animal, in the light of the lamp, came a small baby 'gator slithering under its mother's belly, and then another.

"Billie!" Charlie yelled above the noise of the engine. "Look! Baby 'gators!"

"The Big One's a mother!" Billy screamed back.

But Jeff didn't care if she was the great-grandmother of all the alligators in the Everglades. All he wanted to do was get away. With a roar the boat took off full speed, and moments later they were far out in the middle of the lagoon.

1. Who do you think was the leader of the three boys–Jeff, Billie, or Charlie?

   Explain your choice using specific examples from the passage.

0 20% | 1 52% | 2 23% | 3 4%

2. Why do you think the "Big One" attacked the airboat?

   Explain your answer using specific examples from the passage.

0 19% | 1 60% | 2 21%

3. What do you think helped the boys the ***most*** to escape the "Big One"?

Explain your answer using specific examples from the passage.

0	1	2
18%	61%	21%

4. In what ways did the author make the passage exciting?

Explain your answer using specific examples from the passage.

0	1	2	3
7%	63%	28%	2%

5. After meeting the "Big One," do you think Jeff, Billie, and Charlie would want to go frogging again?

Explain your answer using specific examples from the passage.

0	1	2
7%	68%	25%

6. Directions: Write a paragraph on the topic below.

Jeff, Billie, and Charlie had an exciting night in the Everglades.

Describe the swamp the boys visited at night so that your reader will be able to picture it. Include specific examples from the passage in your description.

As you write your paragraph, remember to:

- Use words that will help your reader picture the swamp the boys visited at night.
- Write in complete sentences.
- Use correct grammar, spelling, punctuation, and capitalization.

0	1	2	3
23%	64%	12%	1%

7. Jeff, Billie, and Charlie went frogging on five nights. They caught 20, 40, 30, 15, and 18 frogs.

How would the median of their catches change if they caught 26 and 34 frogs the next two nights they went frogging?

_____

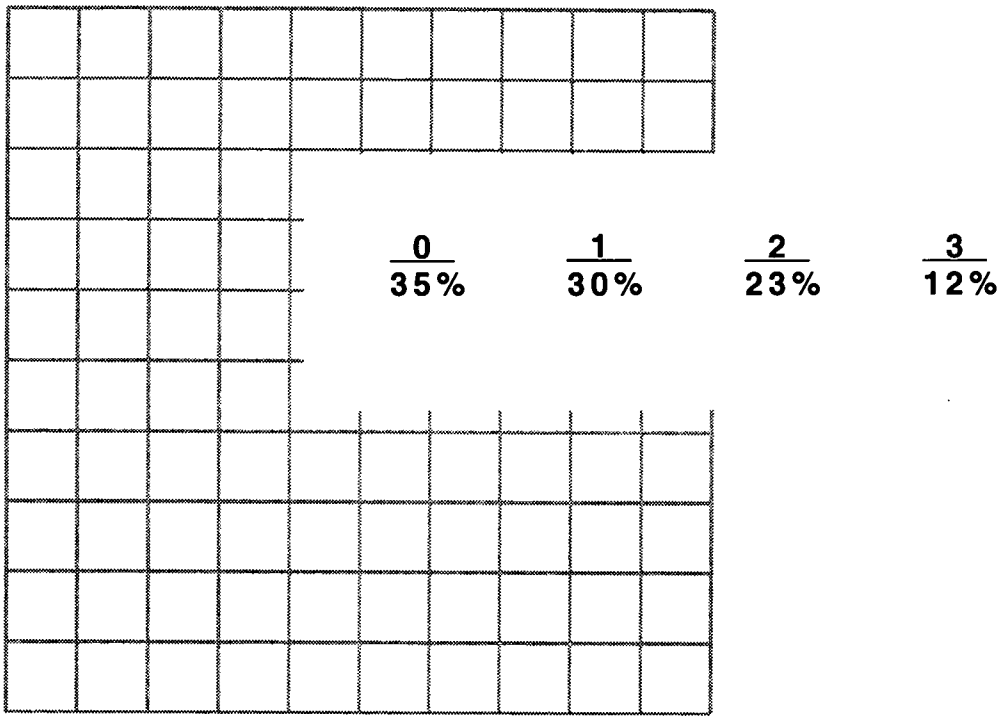
Explain or show how you determined your answer.

0	1	2	3
81%	11%	4%	4%

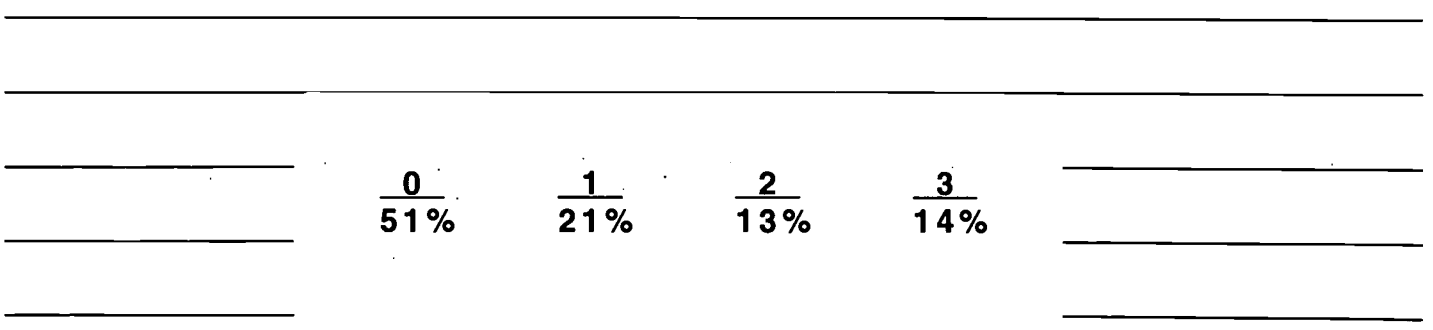
The chart below shows the number of frogs Jeff, Billie, and Charlie caught during one week. Study the chart and answer questions 8 and 9.

Days	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Frogs Caught	0	10	5	25	15	10	40

8. Make a properly titled and labeled graph which shows the number of frogs the boys caught each day.



9. Draw at least three conclusions based on the graph and/or chart above.



10. Billie said he could throw a spear 45 feet. Charlie said he could throw a spear 20 yards. Jeff said Billie could throw a spear farther than Charlie. Was Jeff right? _____

Explain how you determined your answer.

0	1	2	3
51%	32%	11%	6%

11. Billie made a long distance telephone call to the Department of Natural Resources. He wanted to find out the size of the largest alligator ever captured from the swamp. He was charged $1.20 for the first three minutes and $ .50 a minute after that.

If the call cost Billie $3.20, how many minutes did he talk on the telephone?

_____ minutes

0	1
73%	27%

12. Three alligators were captured in the swamp so they could be moved to a protected area. Before they were released, the three alligators were weighed together on a scale. The alligators' total weight was 2,900 pounds. When one alligator was removed, the scale showed 1,359 pounds. When the second alligator was removed, the scale showed 610 pounds.

How much did the second alligator weigh? _____ pounds

Explain how you determined your answer.

0	1	2	3
60%	5%	33%	2%

SIDE 1

North Carolina Open-Ended Assessment
Grade 8
1996-97

School Name

Teacher Name

1. What is your sex?
   ( ) Male ( ) Female

2. What is your ethnic group?
   ( ) American Indian
   ( ) Asian
   ( ) Black
   ( ) Hispanic
   ( ) Multi-racial
   ( ) White
   ( ) Other

Student's Last Name | **First Name**

1996-97 North Carolina Open-Ended Assessment Student Performance at Grade 8

The number of possible score points for each test item is depicted along with the percentage of students statewide achieving each of the scores.

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TO BE COMPLETED BY THE TEACHER OR COUNSELOR

1. Is this student following the North Carolina *Standard Course of Study*?
   ( ) Yes ( ) No
2. Is this student participating in an IASA Title I Program this year? [If yes, mark the choice or choices that most accurately describe(s) the program.]
   ( ) No
   ( ) Yes, School-Wide Program
   ( ) Yes, Targeted Assistance Program
   ( ) Yes, Migrant Program

3. Student Date of Birth

MONTH	DAY	YEAR
Jan (1)		( ) 1981
Feb (2)		( ) 1982
Mar (3)	(0) (0)	( ) 1983
Apr (4)	(1) (1)	( ) 1984
May (5)	(2) (2)	( ) 1985
Jun (6)	(3) (3)	( ) 1986
Jul (7)	(4)	( ) 1987
Aug (8)	(5)	( ) 1988
Sep (9)	(6)	( ) 1989
Oct (10)	(7)	( ) 1990
Nov (11)	(8)	( ) 1991
Dec (12)	(9)	( ) Other

4. Social Security or Alternative SIMS Social Security Number

3. Indicate whether or not this student is currently identified as exceptional in accordance with the state regulations *Procedures Governing Programs and Services for Children with Special Needs.* (Choose one of the following.)
   ( ) Not identified as an Exceptional Student
   ( ) Academically Gifted
   ( ) Behaviorally-Emotionally Handicapped
   ( ) Hearing Impaired
   ( ) Educable Mentally Handicapped
   ( ) Specific Learning Disabled
   ( ) Speech-Language Impaired
   ( ) Visually Impaired
   ( ) Other Health Impaired
   ( ) Orthopedically Impaired
   ( ) Traumatic Brain Injured
   ( ) Other Exceptional Classifications
4. Mark any of the following which apply to this student.
   ( ) Limited English Proficiency
   ( ) Learning Disabled - Reading
   ( ) Learning Disabled - Mathematics
   ( ) Learning Disabled - Written Expression
   ( ) Learning Disabled - Other
5. Which, if any, of the following modifications are being used by this student during this test administration? (Mark all that apply.)
   ( ) Braille Edition
   ( ) Large Print Edition
   ( ) Assistive Technology
   ( ) Braille Writer
   ( ) Cranmer Abacus
   ( ) Dictation to Scribe
   ( ) Interpreter Signs Test
   ( ) Magnification Devices
   ( ) Student Marks in Test Book
   ( ) Test Administrator Reads Test Aloud (in English)
   ( ) Use of Typewriter or Word Processor
   ( ) Hospital/Home Testing
   ( ) Multiple Test Sessions
   ( ) Scheduled Expanded Time
   ( ) Testing in a Separate Room
   ( ) English/Native Language Dictionary or English/Native Electronic Transfer
   ( ) Other

SPECIAL CODES FOR SCHOOL USE ONLY

DO NOT WRITE IN THIS AREA

Read the two passages below about the coastal region of North Carolina and answer the questions that follow.

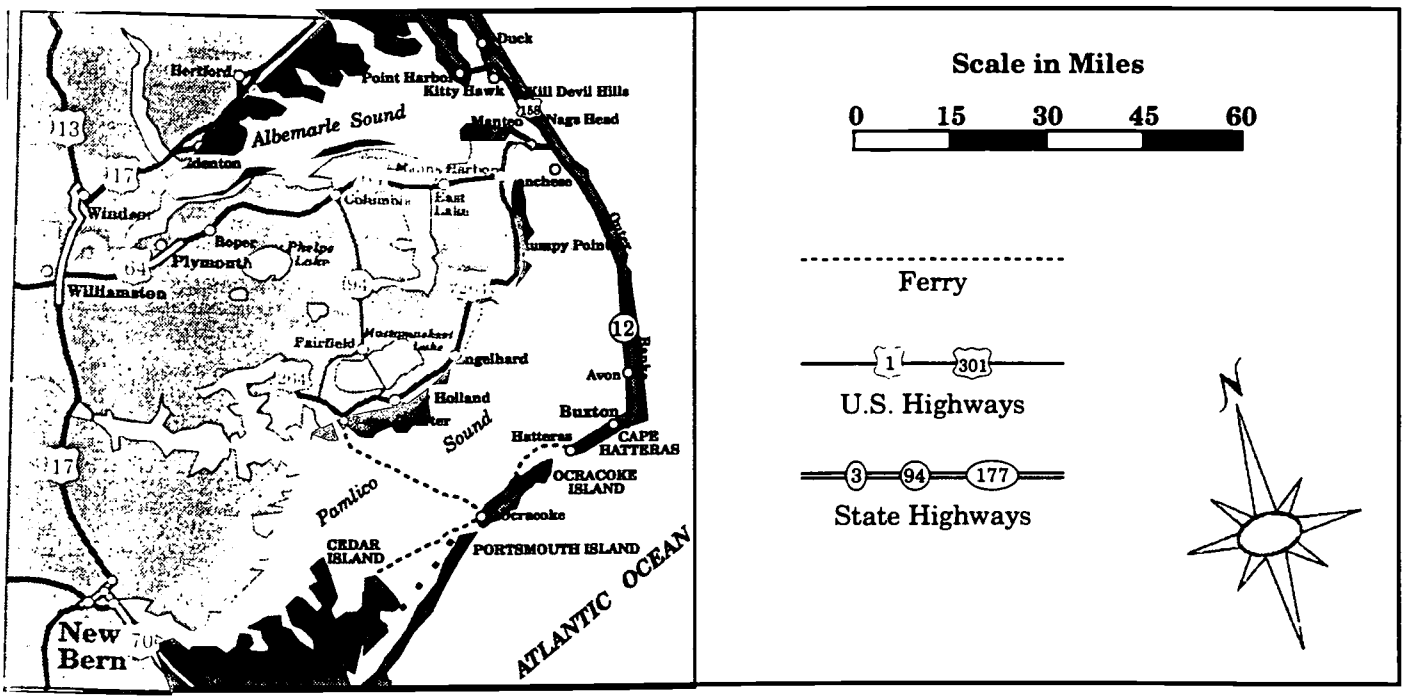
The Outer Banks

The most unusual land feature of the Tidelands is the Outer Banks. Locate the Outer Banks on the map before you go on and read about this unusual formation. The Outer Banks are a chain of low, very narrow, very sandy islands. They are completely separated from the mainland. They stretch for more than 175 miles all along the coastline of our state. They are sometimes called "the Barrier Islands" or our "double coastline." Look back at the map again. As you can see, North Carolina does in fact have two coastlines: the coastline of the "mainland" and the second coastline of the Outer Banks.

All of these islands, and the water between them and the mainland, are a part of the state of North Carolina. Individual county lines run through this water to include these islands. Thus, they are each a part of one county or another.

Every day, waves and tides churn up the shallow waters between the mainland and the Outer Banks. Storms can slice through entire islands, make new openings or inlets. The shifting sands, shallow waters, and changing coastline are all reasons that sailing these waters is dangerous. This is why the area has earned the nickname "Graveyard of the Atlantic."

Charlet, James D., William S. Powell, and Dixie Lee Spielgel. *North Carolina: Our People, Places, and Past.* Durham, N.C.: Carolina Academic Press, 1987. ISBN 0-89089-319-5



The Gray Man of Hatteras

THE YEAR WAS 1966 AND it was just four days until Labor Day. The Coast Guard of Cape Hatteras was busy with one of its assigned chores, warning the summer visitors as well as the year-round residents of the approach of that year's big hurricane. It was certain that the big wind was expected to pass directly over Cape Hatteras, and the word was either to get out while there was time or else to get to a place of safety with all deliberate speed.

Already the wind was blowing a full gale, and the mist and spume from the sea rolled over the beaches as Apprentice Seaman Brooks, newly out of the boot camp at the Coast Guard Academy, led his detachment of men along the beach near Cape Point.

They had just visited the last cottage near the beach, and their work was completed. They were walking back to the spot where they had parked their beach vehicle.

Then they saw it! There, standing just in the break of the seaward dunes, was the figure of a human wearing a sou'wester and slowly swinging his right arm as though to motion someone to come back from the beach and seek the shelter of the dunes.

All but one of the men in the party knew immediately what they were seeing. That one, an outlander recently assigned to service on the Outer Banks, ran toward the shadowy figure, shouting a warning as he ran. The figure turned and faced the runner until barely ten feet separated them. Then it vanished. It just disappeared into the air.

If it was a human, there was no place for him to have hidden. There were no footprints where he had been standing. A search of the nearby beach produced nothing, and the newcomer began to doubt his own eyesight.

When he returned to his group, they explained to the newcomer as gently as they could that what had been seen was not a human but was the familiar Gray Man of Hatteras.

Since the early nineteen hundreds the Gray Man has appeared on that stretch of beach between Cape Point and the Hatteras Lighthouse every time a hurricane threatens. He always appears to be trying to warn the residents to take shelter from the approaching storm, and he always walks that particular stretch of beach.

Some of the old-timers will tell you that this is the spirit of a man who was actually named Gray and who lived near Cape Point in the late eighteen hundreds. He had drowned in a late, sudden, and unexpected storm on that beach. They say he never fails to give his warning, and he is never wrong about the coming storm. He is just as dependable as a barometer.

He is known as a friend and is nothing at all to be afraid of. He loves his people, and he wants to protect them from harm.

Although she is not old enough to remember Gray when he was alive, Mrs. Gene Austin of Hatteras Village has heard Guardsman Brooks tell of the apparition many times. So has Miss Mae Austin of the same village.

"He was one of us in life, and he is one of us still" is the way most of the people think of him.

Whedbee, Charles Harry. *Outer Banks Mysteries and Seaside Stories.* Winston-Salem, N.C.: John F. Blair, 1980. ISBN 0-89587-006-1 CC# 78-58535

1. The passages *The Outer Banks* and *The Gray Man of Hatteras* illustrate two different purposes of writing. Explain how the purposes of these two passages are different.

0	1	2	3
5%	49%	39%	7%

2. If explorers of North Carolina's coast from the 1500s, such as Ralph Lane and John White, were to return today, do you think they would recognize the Outer Banks? Why or why not? Explain your answer using specific references from the passages.

0	1	2	3
9%	49%	38%	3%

3. How might the climate and geography of the Outer Banks contribute to the creation of a legend such as the Gray Man of Hatteras?

Explain your answer using specific references from the passages.

0	1	2	3
13%	59%	25%	3%

4. Why do you think current residents of Cape Hatteras continue to believe in the Gray Man? Explain your answer using specific references from the passage.

0	1	2	3
5%	59%	33%	3%

5. Directions: Write a brief letter on the topic below.

Some people believe the Gray Man of Hatteras actually exists; others believe he is simply a legend.

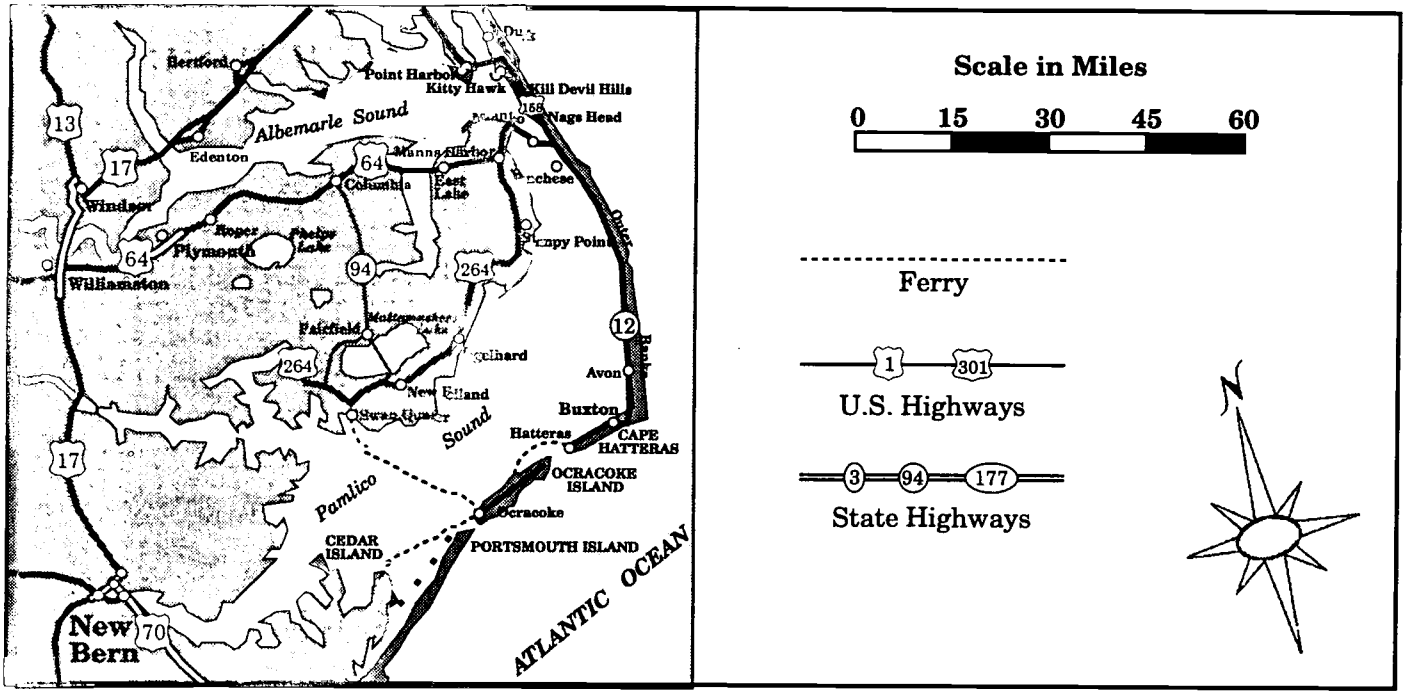
Write a brief letter to your local newspaper trying to persuade the readers to accept your view on whether the Gray Man does or does not actually exist.

As you write your brief letter, remember to:

- Be sure to persuade the readers that the view you give is the best one.
- Write in complete sentences.
- Check to be sure that you are writing good paragraphs.
- Use correct grammar, spelling, punctuation, and capitalization.

0	1	2	3
4%	59%	34%	3%

Use the map below to answer question 6.



6. A group of Coast Guard recruits is going to drive from Columbia to Cape Hatteras. Write a complete set of directions the recruits could use to drive from Columbia to Cape Hatteras. Be as accurate and specific as you can.

0 5% 1 62% 2 29% 3 4%

Formulas

The following information is for your reference in solving some of the problems on the test.

Rectangular or Triangular Prism with base area (B) and height (h)

Volume = Bh

Circle with radius (r)

Area = πr^2

Circumference = $2\pi r$

Cylinder with radius (r) and height (h)

Volume = $\pi r^2 h$

Surface Area = $2\pi rh + 2\pi r^2$

Triangle with base (b) and height (h)

Area = $\frac{1}{2}bh$

Pyramid with base area (B) and height (h)

Volume = $\frac{1}{3}Bh$

Total Area = Surface Area + B

Cone with radius (r), height (h), and slant height (l)

Volume = $\frac{1}{3}\pi r^2 h$

Lateral Area = πrl

Total Area = $\pi r^2 + \pi rl$

Use $\pi = 3.14$ or $\frac{22}{7}$

Hypotenuse (c) of right triangle with base (b) and altitude (a)

$c^2 = a^2 + b^2$

7. To modify erosion at Cape Hatteras, the Army Corps of Engineers obtained a special permit to design a sea wall 12 feet high and 4 feet thick. How long will the sea wall be if they use 9600 cubic feet of concrete? _____

0	1	2
55%	9%	37%

8. Using 9600 cubic feet of concrete, how might the Army Corps of Engineers design a sea wall 300 feet long?

0	1	2
46%	31%	24%

9. The Brooks family will travel between 600 and 700 miles during their trip to the Outer Banks. Their van averages 25 miles per gallon of gasoline.

If the cost of gasoline ranges from \$1.19 to \$1.36 per gallon, could they expect to spend between \$20 and \$25 on gasoline during their trip? _____

Explain how you determined your answer.

0	1	2	3
45%	25%	23%	7%

Use the ferry schedule to answer questions 10 and 11.

ROUTES AND SCHEDULES

Cedar Island	Ocracoke	Hatteras	Ocracoke
Crossing - 2 1/4 Hours		Crossing - 40 minutes	
Depart (Summer)		**Depart (Summer)**	
7 am	7 am	5 am	5 am
8:15	9:30	6:00	6:00
9:30	10:45	7:00	7:00
Noon	Noon	7:30	*8:00
1:15	3:00	*8:00	8:30
3:00	4:15	8:30	9:00
6:00	6:00	9:00	9:30
8:30	8:30	9:30	10:00
Depart (Winter)		10:00	10:30
		10:30	11:00
7 am	7 am	11:00	11:30
10:00	10:00	11:30	Noon
1 pm	1 pm	Noon	12:30
4 pm	4 pm	12:30	1:00
		1:00	1:30
		*1:30	*2:00
		2:00	2:30
		2:30	3:00
		3:00	3:30
		3:30	4:00
		*4:00	4:30
		4:30	*5:00
		5:00	5:30
		5:30	6:00
		6:00	6:30
		6:30	7:00
		8:00	7:30
		10:00	9:00
		Midnt	11 pm

Capacity - 50 Cars
Fare (One Way)

Pedestrian	$1.00
Bicycle Rider	$2.00
Motorcycles	$10.00
Vehicle and/ or combination less than 20'	$10.00
Vehicle and/ or combination 20' up to 40'	$10.00
Vehicle and/ or combination up to 55'	$30.00

***Priority loading of commercial vehicles June 1 - Labor Day (by Permit)**

Depart (Winter)

Leaves Hatteras every hour, 5 am to 5 pm & at 7 pm, 9 pm & 11pm. Leaves Ocracoke every hour, 6 am to 6 pm, 8 pm & 10 pm.

Capacity - 30 cars
Fare - Free

Seasons: Cedar Island—Ocracoke & Ocracoke—Hatteras: Summer: April 1 - October 31, Winter: November 1 - March 31.

10. The pilots on the ferry that travels between Hatteras and Ocracoke work eight hour shifts.

What are the most crossings a pilot could make between Hatteras and Ocracoke if he/she allowed 20 minutes for the ferry to load and unload? _____

Explain how you determined your answer.

0	1	2	3
54%	24%	10%	13%

11. While at Cedar Island, the Brooks notice 20 tractor-trailers waiting for the Cedar Island to Ocracoke ferry. The tractor-trailers are 18 feet, 36 feet, and 48 feet long.

What is the ***most*** that would be collected in ferry fees if there is at least one tractor-trailer of each size?

$_____

Explain how you determined your answer.

0	1	2	3
52%	37%	5%	6%

Based on current scientific data, tides occur as a result of the gravitational pull of the sun / moon and the rotation and revolution of the earth. As this occurs in a regular pattern, tide tables such as the following have been designed. Use this tide table to answer question 12.

Weekly Tide Table

High Tides

Date	Time	
	A.M.	P.M.
June 1	2:01	2:26
June 2	2:51	3:16
June 3	3:41	4:06
June 4	4:31	4:56
June 5	5:21	5:46
June 6	6:11	6:36
June 7	7:01	7:26

12. The Brooks family is planning to visit the Outer Banks on their summer vacation. They plan to arrive on June 9.

When should the first high tide occur on June 9? _____

0	1	2
69%	14%	17%

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Office of Educational Research and Improvement (OERI)
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