



Public Schools of North Carolina
State Board of Education
Department of Public Instruction

Report to the North Carolina General Assembly

CURSIVE WRITING AND MULTIPLICATION TABLES

Joint Legislative Education Oversight Committee

SB257 (SL 2017-57, sec 7.23B)

Date Due: March 30, 2018

Report #68

DPI Chronological Schedule, 2017-2018

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REPORT ON CURSIVE WRITING AND MULTIPLICATION TABLES

Introduction

SECTION 7.23B of SL2017-57 requires the State Board of Education and the Department of Public Instruction to report to the Joint Legislative Education Oversight Committee by March 30, 2018, the measures taken by each local school administrative unit to implement the requirements regarding cursive writing and memorization of the multiplication tables pursuant to G.S. 115C-81(k) and (l) and to ensure that those requirements are met. 115C-81(k) asserts that the standard course of study shall include the requirement that the public schools provide instruction in cursive writing so that students create readable documents through legible cursive handwriting by the end of fifth grade. Section (l) states that the standard course of study shall include the requirement that students enrolled in public schools memorize multiplication tables to demonstrate competency in efficiently multiplying numbers.

Organization

This report is organized by Instructional Practices, Instructional Time, Materials and Resources, and Alignment with the *NC Standard Course of Study* for students to be able to create readable documents through legible cursive handwriting and in the memorization of multiplication tables.

Methodology

A short survey was launched from February 1 - February 21, 2018 to Chief Academic Officers in each LEA.

Instructional Practices in Cursive Writing

Respondents indicated which of the following practice(s) are used with third through fifth graders in their districts to support cursive writing so that students create readable documents using legible cursive handwriting by the end of fifth grade.

<i>Answer</i>	<i>3rd</i>	<i>4th</i>	<i>5th</i>
<i>Assignments for students to create readable documents using legible cursive handwriting</i>	54.31%	50.46%	47.22%
<i>In class direct instruction of cursive writing</i>	20.53%	11.81%	9.89%
<i>In class informal (indirect) instruction of cursive writing</i>	22.87%	26.74%	28.14%
<i>In class practice of cursive writing</i>	22.87%	25.00%	22.81%
<i>In class exposure to sample materials demonstrating cursive writing</i>	20.53%	23.61%	25.86%
<i>Homework practice of cursive writing</i>	9.97%	9.72%	9.51%
<i>Other</i>	3.23%	3.13%	3.80%

Instructional Practices in Memorization of Multiplication Tables

Respondents indicated which of the following practice(s) are used with third graders in their districts to support memorization of multiplication tables to demonstrate competency in efficiently multiplying numbers.

<i>Answer</i>	<i>%</i>
<i>Requirement for students to memorize multiplication facts to 100</i>	88.79%
<i>In class direct instruction in memorization of multiplication facts</i>	19.75%
<i>In class informal (indirect) instruction in memorization of multiplication facts</i>	18.11%
<i>In class practice of memorization of multiplication facts</i>	19.75%
<i>In class exposure to tools supporting the memorization of multiplication facts</i>	20.16%
<i>Homework practice in memorization of multiplication facts</i>	20.16%
<i>Other</i>	2.06%

Instructional Time

Respondents indicated how much time overall is allotted to the teaching and practicing of cursive writing and to the memorization of multiplication facts in their districts.

<i>Instructional Time</i>	<i>Cursive Writing</i>	<i>Multiplication Facts</i>
<i>Daily Practice</i>	6.54%	52.05%
<i>Weekly Practice</i>	41.12%	42.47%
<i>Monthly Practice</i>	14.02%	2.74%
<i>Occasional Practice</i>	38.32%	2.74%
<i>Total</i>	100%	100%

Curriculum Materials or Programs

Respondents cited resources such as, *Handwriting Without Tears*, *The Beginning Cursive Handbook*, *Writing A to Z*, and using *Zaner-Bloser* or *D'Nealian* methods and related materials for the teaching of cursive writing. LEAs reported that students are exposed to a variety of writing opportunities in regular instruction, some of which are done by hand, but many are done with the aid of technology devices. Respondents noted that student writing is often required to be in digital format because of expectations for formal communication in education and business in the 21st century. Some districts begin cursive writing instruction in second grade to help manage the expectations of Read to Achieve in third grade. Many districts have developed local resources, such as writing guides with teams of teachers and instructional support staff.

NCDPI provides a variety of resources, to support teacher instruction of foundational skills, including cursive writing resources. Elementary resources are provided by grade level and include links to a variety of resources for foundational skills such as *Cursive Letters*, *Cursive Writing Sequence of Instruction* (Study.com), and *Teaching Cursive Writing* (New York City Department of Education). New resources and revisions to existing resources are being provided to support implementation of the 2017 standards.

Respondents cited a variety of resources for the teaching and practicing of multiplication facts in their districts, such as *enVision Math 2.0*, *Engage New York*, *Eureka Math*, *Flocabulary*, *Multiplication Rap*, *Math Investigations*, *Great Leaps*, *Reflex Math*, *Number Talks* (Sherry Parrish); and *Mastering the Basic Math Facts in Multiplication and Division* (Susan O'Connell & John SanGiovanni). LEAs reported the use of wraps, webtools, hands-on/group work in small stations, or software to support practice. Many districts stated that they support learning multiplication facts as part of conceptual learning in mathematics and foundational to the overall math program. LEAs reported they provide support through locally developed curriculum frameworks, noting that, with the standards, multiplication is embedded in the curriculum and not taught in isolation. Many districts support multiplication facts as part of a comprehensive math program that includes procedural as well as conceptual math that prepares students for upper level math courses and STEM areas.

NCDPI provides a variety of resources, developed with teacher practitioners in partnership with NCDPI staff, to support students' understanding of multiplication and division. Examples include the *Lessons for Learning* series, and *Building Conceptual Understanding and Fluency through Games*, which include research-supported strategies to supplement teachers' current resources. New resources and revisions to existing resources are being provided to support implementation of the 2017 standards.

Alignment with the NC Standard Course of Study

Cursive Writing instruction is part of the Writing Standards and is found in W.6a for grades 3-5 of the *NC Standard Course of Study for English Language Arts* (2010). Under Production and Distribution of Writing 6a, students are required to, "create readable documents with legible handwriting (manuscript and cursive)" in third grade; "to create readable documents through legible handwriting (cursive) and/or word processing" in fourth grade; and to "create readable documents through legible handwriting (cursive) and word processing" in fifth grade.

The 2017 adoption of the *NC Standard Course of Study for English Language Arts* (to be implemented in NC public schools in the 2018-19 school year) includes Handwriting in the Foundational Skills Strand, which clearly articulates the progression of manuscript and cursive writing from Kindergarten through fifth grade:

"The foundational skills are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system, including handwriting. These foundational skills are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. A systematic approach to handwriting instruction (manuscript and cursive) in the elementary grades is essential for students to communicate their ideas clearly. To achieve handwriting proficiency, students need to apply their handwriting skills to authentic writing activities" (*Understanding the English Language Arts Standard Course of Study, Grade 5, 2017*).

Cursive writing skills are specifically addressed in grades 3, 4, and 5, reflecting the legislative requirement that students "create readable documents in legible cursive writing by the end of fifth grade."

Foundational Skills Strand in the NC Standard Course of Study for English Language Arts (2017): Handwriting

GRADE	NUMBER	STANDARD
3rd Grade	RF.3.2	Create readable documents with legible handwriting (manuscript and cursive).
4th Grade	RF.4.2	Create readable documents through legible handwriting (cursive).
5th Grade	RD.5.2	Create readable documents through legible handwriting (cursive).

Multiplication instruction is part of the current *NC Standard Course of Study for Mathematics* (2010). The overview for the third-grade standards provides a description of how students develop understanding of multiplication and division strategies:

1. **“Developing understanding of multiplication and division and strategies for multiplication and division within 100** – Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.”

Memorizing all products of two one-digit numbers is required by the end of third grade. Under 3.OA.7 of the Operations and Algebraic Thinking strand in the *NC Standard Course of Study for Mathematics* (2010) students are required to, “Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.”

The 2017 adoption of the *NC Standard Course of Study for Mathematics* (to be implemented in NC public schools in the 2018-19 school year) includes memorization of multiplication facts and is specifically addressed in 3.OA.7, reflecting the legislative requirement that students enrolled in public schools memorize multiplication tables to demonstrate competency in efficiently multiplying numbers. In third grade, competency is developed through representing, interpreting, and solving one-step problems involving multiplication and division. The standard is explicitly addressed in third grade, and is not repeated, but it should be maintained and built upon in subsequent grades.

OPERATIONS AND ALGEBRAIC THINKING in the *NC Standard Course of Study for Mathematics* (2017)

Multiply and Divide within 100

GRADE	NUMBER	STANDARD
3	3.OA.7	Demonstrate fluency with multiplication and division with factors, quotients and divisors up to and including 10. • Know from memory all products with factors up to and including 10. • Illustrate and explain using the relationship between multiplication and division. • Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
