

STATE C
CURRICULUM INDICATORS SURVEY (CIS) RESULTS

UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE
NATIONAL ALTERNATE ASSESSMENT CENTER

OCTOBER, 2007

TABLE OF CONTENTS

Introduction and methodology.....	3
Results.....	5
Appendix tables.....	25

CURRICULUM INDICATORS SURVEY (CIS) RESULTS

The Curriculum Indicators Survey (CIS) was administered as part of the alignment study on State C's alternate assessments based on alternate achievement standards conducted by the University of North Carolina at Charlotte under the auspices of the National Alternate Assessment Center. This report summarizes the methodology and findings from the CIS administration.

Methodology

The CIS is a five-part survey designed to measure, through teacher self-report, the enacted academic curriculum in English language arts (ELA), math, and science, for students with significant cognitive disabilities who are eligible to take a state's alternate assessment based on alternate achievement standards. The CIS is based on the concepts in the Surveys of Enacted Curriculum but is adapted for the unique needs of this population of teachers and students.

- Part 1 asks for background information on the teacher (e.g., educational experience, characteristics of case load, and instructional influences in each academic subject).
- In Part 2, teachers provide information about the types of students on their case load, based on students' levels of symbolic communication. They are then asked to select a single student on their case load who will serve as the "target student" for the remaining three parts of the survey.
- Parts 3-5 measure the English language arts, math, and science curriculum being taught to the target student during the current academic year. For each academic skill taught, teachers rate three pieces of information: (1) the intensity of coverage of the topic, (2) the highest performance expectation (depth of knowledge, or DOK) of the student on the topic, and (3) the grade level or band from which activities, materials, and contexts were adapted for instruction on that skill. There are also a few questions in Parts 3-5 about the types of instructional methods used to teach the academic content.

Teachers were invited to complete the short version online in April 2007. Eligible teachers were identified by State C's Department of Education. Twenty-four teachers were recruited via email. Follow-up emails were sent halfway through the two week survey window. As an incentive, respondents who completed all five sections received \$25 gift cards. Some teachers who completed the short version of the survey also responded to the long version of the survey as part of a validation study conducted by NAAC. For Parts 1 and 2 of the survey, results are reported based on unduplicated responses from the long and short versions ($n = 11$). Results for parts 3-5 are reported for the short version responses ($n = 7$). Alignment indices between the enacted curriculum and State C's alternate assessment were not calculated because the low number of responses rendered those indices invalid. Instead, this report provides purely descriptive results.

Organization of the Findings

CIS results are organized into two sections: (a) respondents' backgrounds and (b) the enacted (taught) curriculum. Within the second section, results are reported for each subject (English language arts, math, and science). An appendix contains supplemental tables.

Section 1: Respondents' Backgrounds

A total of 11 teachers, all female completed Part 1 of the CIS. The majority (n=7) held Bachelors degrees, while three had Master's degrees and one respondent had a six-year degree. Distributions of years of teaching experience are summarized in the table below. The majority had ten or fewer years of experience teaching students with significant disabilities or teaching academics.

Number of Respondents Reporting Years of Teaching Experience

Years of experience	Total Teaching	Teaching students with sig. cog. disabilities	Teaching ELA	Teaching Math	Teaching Science
0-10	6	8	7	7	7
11-20	3	1	2	2	2
21 or more	2	2	2	2	2

Relatively few respondents held licensure in the academic subjects (3 in ELA, 1 in math, 2 in science). All respondents held certification in special education, and almost all (n = 9) were certified in elementary education. Fewer respondents had middle (n=5) or secondary licensure (n=3). None held National Board certification.

Teachers were also asked to report the amount of time in the past year that they had spent in professional development on content standards and instructional strategies in each of the three academic subjects. Response distributions are shown below. The most widely reported professional development experiences were in ELA instructional strategies, followed by ELA content standards, math content standards and instructional strategies. Approximately one-third of respondents (n=4) reported receiving any professional development in science within the previous year.

Time Spent in Professional Development in Past 12 Months

	none	1-5 hours	6-10 hours	11-15 hours	> 15 hours
Instructional strategies in teaching ELA/Reading	2	5	2	0	2
ELA/Reading content standards	3	4	1	0	3
Instructional strategies in teaching math	4	4	1	0	2
Math content standards	5	4	1	0	1
Instructional strategies in teaching science	7	3	0	0	1
Science content standards	7	3	0	0	1

Section 2: Academics

Teachers completed surveys on the enacted curriculum for their students in English language arts (ELA), math, and science. Nine teachers completed Part 2 of the survey, in which the target student was identified for Parts 3-5.

In order to understand the characteristics of the learners selected as target students, respondents were asked to identify which of the three levels of communication best reflected what the student could currently do.

Level 1 (awareness/presymbolic): Has not yet acquired the skills to discriminate between pictures or other symbols (and does not use symbols to communicate). May or may not use objects to communicate. May or may not use idiosyncratic gestures, sounds/vocalizations, and movements/touch to communicate with others. A direct and immediate relationship between a routine activity and the student’s response may or may not be apparent. The student may have the capacity to sort very different objects, may be trial and error. Mouthing and manipulation of objects leads to knowledge of how objects are used. May combine objects (e.g., place one block on another).

Level 2 (early symbolic): May use some symbols to communicate (e.g., pictures, logos, objects). Beginning to acquire symbols as part of a communication system. May have limited emerging functional academic skills. Representations probably need to be related to the student’s immediate environment and needs.

Level 3 (symbolic): Communicates with symbols (e.g., pictures) or words (e.g., spoken words, assistive technology, ASL, home signs). May have emerging or basic functional academic skills. Emerging writing or graphic representation for the purpose of conveying meaning through writing, drawing, or computer keying.

The majority of teachers identified target students who had symbolic communication (Level 3). Of the target students selected, one was enrolled in elementary grades, five in middle grades, and three in high school.

Communication Levels of Identified Target Students, by Enrolled Grade Band

Assigned grade band	Level 1	Level 2	Level 3	Total
3-5			1	1
6-8	1	2	2	5
9-12			3	3
Total	1	2	6	9

While disability labels are not precise classifications in terms of students’ levels of functioning, teachers were asked to provide this information about their target students for descriptive purposes. The most frequently reported categories were mental retardation, autism, multiple disabilities, and other health impairment. None of the respondents selected target students with deaf-blindness, traumatic brain injury, serious emotional disturbance, specific learning disabilities, speech/language impairment, or hearing impairment.

Disability Labels of Target Students (N = 9)

IDEA Disability Label	# of Target Students
Mental Retardation	8
Autism	3
Multiple Disabilities	2
Other Health Impairment	2
Orthopedic Impairment	1
Visual Impairment	1

Thus, the target students are primarily enrolled in middle and secondary grades, and have symbolic communication systems. Given the small number of CIS responses and the characteristics of the target students selected, State C's Department of Education is strongly cautioned to realize the enacted curriculum described in this report is unlikely to represent the curriculum of all students who take the alternate assessment.

ENGLISH LANGUAGE ARTS

A total of seven teachers completed the English language arts (ELA) section of the short version CIS, which includes both reading and writing. This section of the report summarizes teacher responses to the ELA section as well as ELA-related items from Part I of the survey (general background).

ELA Content

The table below provides an overview of the distributions of depth of knowledge (DOK) expected of target students for items within each of the four ELA topics. Frequencies represent the number of items, across target students, for whom the content was taught in 2006-07. Distributions of DOK expectations for each item within each topic are reported in Table E.1 in the appendix.

Distribution of ELA Content Taught, by Depth of Knowledge

Topic	N	Attention		Memorize/ Recall		Perform		Comprehend		Apply		Analyze/ Synthesize/ Evaluate	
		n	%	n	%	n	%	n	%	n	%	n	%
Language	30	9	30.0	6	20.0	10	33.3	4	13.3	1	3.3	0	0.0
Reading and Literature	56	18	32.1	18	32.1	10	17.9	8	14.3	1	1.8	1	1.8
Composition	26	5	19.2	8	30.8	11	42.3	0	0.0	2	7.7	0	0.0
Media	5	1	20.0	1	20.0	3	60.0	0	0.0	0	0.0	0	0.0

The most frequently taught ELA topic was Reading and Literature. Forty-three percent of the responses within this topic came from items related to beginning reading, understanding texts, making connections, and nonfiction (see Table E.1). Language and Composition were the other two most frequently reported ELA topics included in the enacted curriculum for target students in 2006-07. The highest performance expectations for the target students in the current academic year tended to be on attending to the content, memorizing or recalling the content, or performing rote tasks related to the content. In virtually no instances were students expected to analyze, synthesize, or evaluate material.

Grade Level Materials, Activities, and Contexts

After identifying each type of ELA content and DOK at which the target students were taught, teachers were also asked to identify the grade band or grade from which activities, materials, and contexts were adapted to teach the corresponding ELA content. The table below summarizes the distribution of responses to items within each ELA topic. (Respondents could identify more than one grade band if applicable to the target student.)

The majority of ELA materials were adapted from elementary grades, either preK-2 or 3-5, although especially in Reading and Literature teachers reported using materials not designated for a specific grand band.

Percent of CIS items taught to target student with materials, activities, contexts in each grade band

	pK-2			3-5		6-8		9-12		No grade band		Specific grade	
	N	n	%	n	%	n	%	n	%	n	%	n	%
Language	30	13	43.3	8	26.7	3	10.0	0	0.0	5	16.7	1	3.3
Reading and Literature	53	28	52.8	9	17.0	1	1.9	0	0.0	12	22.6	3	5.7
Composition	31	14	45.2	13	41.9	2	6.5	0	0.0	2	6.5	0	0.0
Media	4	1	25.0	1	25.0	0	0.0	0	0.0	2	50.0	0	0.0

Other ELA Instruction Information

Tables E.2 – E.5 in the appendix provide additional results related to ELA instruction. Highlights of these findings are as follows:

- **Instructional activities:** The most frequently reported instructional methods used recently with the target students in ELA were individualized instruction, scaffolded instruction with supports, and small group instruction. The highest rate of expected independent, active performance within a lesson was seen in individualized instruction, independent work, the use of computers or assistive technology, and demonstration of skills through repeated opportunity/direct instruction trials.
- **Resources:** Teachers most frequently reported using teacher-made or teacher-adapted materials, and website materials to teach students who take the alternate assessment. More than half also reported using computers and/or assistive technologies. Most respondents also reported using functional, real-life materials and enlisting support from therapeutic support staff to assist with ELA instruction.
- **Instructional influences:** The strongest influences on teachers’ choices about ELA instruction are student needs as documented in IEPs (n = 11 ‘strong influence’) and classroom assessment results (n = 9 ‘moderate’ or ‘strong’ influence). Lesser influences included ELA content and materials used by general education teachers at their school; national ELA standards; and prior alternate assessment results.
- **Classroom assessment:** For the purpose of assessing their students in ELA, teachers reported using observational data and performance on-demand most frequently (n = 8, once per week or more frequently). Objective tests were used weekly or more often by six of eleven respondents.

MATHEMATICS

A total of 7 teachers completed the math section of the short version CIS. This section summarizes teacher responses to the math section as well as math-related items from Part I of the survey (general background).

Math Content

The table below provides an overview of the distributions of depth of knowledge (DOK) expected of target students for items within each of the five math topics. Frequencies represent the number of items, across target students, for whom the content was taught in 2006-07. Distributions of DOK expectations for each item within each topic are reported in Table M.1 in the appendix.

Distribution of Math Content Taught, by Depth of Knowledge

Topic	N	Attention		Memorize/ Recall		Perform		Comprehend		Apply		Analyze/ Synthesize/ Evaluate	
		n	%	n	%	n	%	n	%	n	%	n	%
Number Sense and Operations	17	1	5.9	1	5.9	12	70.6	1	5.9	2	11.8	0	0.0
Patterns, Relations, and Algebra	17	8	47.1	5	29.4	3	17.6	1	5.9	0	0.0	0	0.0
Geometry	16	7	43.8	3	18.8	0	0.0	4	25.0	2	12.5	0	0.0
Measurement	17	5	29.4	0	0.0	8	47.1	1	5.9	3	17.6	0	0.0
Data Analysis, Statistics, and Probability	11	3	27.3	6	54.5	1	9.1	1	9.1	0	0.0	0	0.0

Items in four of the five topics were endorsed at approximately the same rate ($n = 16$ to $n = 17$ items). The Data Analysis, Statistics, and Probability topic was emphasized to a lesser degree. All seven teachers reported that their target students were taught number sense; patterns; and measurement tools such as clocks and calendars (see Table M.1). The highest performance expectations for the target students in the current academic year tended to be on attending to the content, memorizing or recalling the content, or performing rote tasks related to the content. Roughly one-third of expectations were at higher levels of cognitive demand (comprehension and application) in Geometry, and about one-fourth were expected to work at the comprehension and application levels in Measurement. None of the target students were expected to analyze, synthesize, or evaluate material in math.

Grade Level Materials, Activities, and Contexts

After identifying each type of math content and DOK at which the target students were taught, teachers were also asked to identify the grade band or grade from which activities, materials, and contexts were adapted to teach the corresponding math content. The table below summarizes the distribution of responses to items within each math topic. (Respondents could identify more than one grade band if applicable to the target student.)

The majority of math materials were adapted from elementary grades, either preK-2 or 3-5. As many as 23% of items (Data Analysis) were taught with materials and activities that were not unique to a specific grade band. No teachers reported adapting materials from high school grades in any subject, or from middle grades in four of the five topics.

Percent of CIS items taught to target student with materials, activities, contexts in each grade band

	pK-2			3-5		6-8		9-12		No grade band		Specific grade	
	N	n	%	n	%	n	%	n	%	n	%	n	%
Number Sense and Operations	19	15	78.9	2	10.5	0	0.0	0	0.0	2	10.5	0	0.0
Patterns, Relations, and Algebra	17	14	82.4	0	0.0	0	0.0	0	0.0	3	17.6	0	0.0
Geometry	18	11	61.1	5	27.8	1	5.6	0	0.0	1	5.6	0	0.0
Measurement	19	13	68.4	2	10.5	0	0.0	0	0.0	4	21.1	0	0.0
Data Analysis, Statistics, and Probability	13	6	46.2	4	30.8	0	0.0	0	0.0	3	23.1	0	0.0

Other Math Instruction Information

Tables M.2 – M.5 in the appendix provide additional results related to math instruction. Highlights of these findings are as follows:

- **Instructional activities:** The most frequently reported instructional methods used recently with the target students in math were individualized instruction, small or large group instruction, the use of manipulatives to solve problems, and scaffolded instruction with prompts. Across most instructional activities, teachers most frequently reported expecting the target students to perform actively with supports.
- **Resources:** Teachers most often reported using teacher-made books and materials or commercially prepared materials adapted from general education in order to teach math lessons. The majority also used functional, real-life materials, although only half said math concepts were taught in inclusive classrooms. Six of ten respondents reported enlisting support from therapeutic support staff to assist with math instruction.
- **Instructional influences:** The strongest influences on teachers’ choices about math instruction are student needs as documented in IEPs (n = 10, moderate or strong influence) and classroom assessment results (n = 9, moderate to strong influence). Less endorsed items included national math standards; previous alternate assessment results; school or district priorities; principal or administrator expectations; and math content, materials, and activities used by general education teachers in the school.
- **Classroom assessment:** For the purpose of assessing their students who take the Alt-MSA Mathematics assessment, teachers reported using observational data and performance on demand most frequently (n = 10, once per week or more frequently). Six of ten also reported using objective tests for assessment purposes once per week or more frequently.

SCIENCE

Seven teachers completed the science section of the CIS. This section summarizes teacher responses to the science section as well as science-related items from Part I of the survey (general background).

Science Content

The table below provides an overview of the distributions of depth of knowledge (DOK) expected of target students for items within each of the six science topics. Frequencies represent the number of items, across target students, for whom the content was taught in 2006-07. Distributions of DOK expectations for each item within each topic are reported in Table S.1 in the appendix.

Distribution of Science Content Taught, by Depth of Knowledge

Topic	N	Attention		Memorize/ Recall		Perform		Comprehend		Apply		Analyze/ Synthesize/ Evaluate	
		n	%	n	%	n	%	n	%	n	%	n	%
Earth and Space Science	15	7	46.7	3	20.0	3	20.0	2	13.3	0	0.0	0	0.0
Life Science (Biology)	36	17	47.2	9	25.0	5	13.9	5	13.9	0	0.0	0	0.0
Physical Science (Chemistry & Physics)	19	14	73.7	2	10.5	1	5.3	2	10.5	0	0.0	0	0.0
Technology/Engineering	6	2	33.3	3	50.0	0	0.0	1	16.7	0	0.0	0	0.0
History/Nature of Science	6	5	83.3	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0
Science as inquiry	4	4	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

The most frequently taught science subject was Life Science. The most frequent responses within this category were for the items related to personal and community health and characteristics of organisms (see Table S.1). Physical Science and Earth and Space Science were the other two most frequently reported science topics included in the enacted curriculum for target students in 2006-07. The highest performance expectation tended to be that the target students would attend to the content or memorize and recall the content. None of the target students were required to apply, analyze, synthesize, or evaluate material.

Grade Level Materials, Activities, and Contexts

After identifying each type of science content and DOK at which the target students were taught, teachers were also asked to identify the grade band or grade from which activities, materials, and contexts were adapted to teach the corresponding science content. The table below summarizes the distribution of responses to items within each science topic. (Respondents could identify more than one grade band if applicable to the target student.)

More than half of science materials, activities, and contexts were adapted from elementary grade bands. Materials not linked to a specific grade band were used for about one-fourth of the content in Earth and Space Science, and materials associated with middle grades (6-8) were used for 22% of the Life Science items.

Percent of CIS items taught to target student with materials, activities, contexts in each grade band

	pK-2			3-5		6-8		9-12		No grade band		Specific grade	
	N	n	%	n	%	n	%	n	%	n	%	n	%
Earth and Space Science	15	5	33.3	3	20.0	3	20.0	0	0.0	4	26.7	0	0.0
Life Science (Biology)	36	17	47.2	7	19.4	8	22.2	0	0.0	4	11.1	0	0.0
Physical Science (Chemistry & Physics)	19	8	42.1	4	21.1	2	10.5	0	0.0	2	10.5	3	15.8
Technology/Engineering	6	3	50.0	1	16.7	1	16.7	0	0.0	1	16.7	0	0.0
History/Nature of Science	6	3	50.0	2	33.3	1	16.7	0	0.0	0	0.0	0	0.0
Science as inquiry	4	2	50.0	1	25.0	1	25.0	0	0.0	0	0.0	0	0.0

Other Science Instruction Information

Tables S.2 – S.5 in the appendix provide additional results related to science instruction. Highlights of these findings are as follow:

- **Instructional activities:** The most frequently reported instructional methods used recently with the target students in science were small group instruction, scaffolded instruction with supports, the use of hands-on materials and manipulatives, and practice with a variety of similar materials. Science instruction may not have a large emphasis in target students’ overall educational program, as evidenced by the high rates at which science methods were reported to have been used one hour or less in the past week, or not at all. When certain science instruction methods were used, the expectation for the target student tended to include some level of support or limited participation, rather than independent, active performance within the lesson.
- **Resources:** Teachers most often reported using teacher-made materials, website materials, or commercially prepared materials adapted from general education in order to teach science lessons. Seven of ten respondents said their students received science instruction in an inclusive setting. Fewer than half of the teachers reported using the support of other teachers, support staff, or nondisabled peers to assist with science instruction.
- **Instructional influences:** The strongest influences on teachers’ choices about science instruction are student needs as documented in IEPs (N = 11, strong influence), classroom assessment results (n = 9, moderate to strong influence), and instructional materials (n = 8, moderate to strong influence). The items most often rated as having minimal to no influence on respondents’ science instructional choices were national science standards, previous alternate assessment results, professional development experiences, and principal or other administrator expectations.
- **Classroom assessment:** For the purpose of assessing their students in science, teachers reported using observational data most frequently (n = 9, once per week or more frequently), followed by performance on-demand (n = 8, once per week or more often) and objective tests (n = 4, once per week or more often).

CIS SHORT VERSION: CONCLUSIONS

Teachers who completed the short version of the CIS are teaching a broad range of content in English language arts, math, and science. Emphases appear to be in reading and literature; a balance of several math topics (number sense, measurement, geometry, algebra). In science the emphasis appears to be on life science, although that finding may be due to the fact that most target students were enrolled in middle or secondary grade levels. Depth of knowledge (DOK) tended to be clustered at the lower levels of the scale across all three academic subjects.

State C's Department of Education may want to further consider discrepancies between the symbolic communication skills of students in the sample and evidence of high expectations in instruction. For example, while the majority of target students in the sample reportedly had symbolic communication systems, teachers frequently reported teaching content at the "attention" level – requiring only eye gaze, vocalization, or some other form of minimal, intentional response. Similarly, there were low rates of expected independent, active participation of these students in most instructional activities.

According to federal guidelines, alternate assessments judged against alternate academic achievement standards are supposed to be aligned to grade level expectations. However, the activities, materials, and contexts teachers reported using during instruction tended to be adapted from elementary grades (pK-2 or 3-5) while the target students were primarily enrolled in grades 6-12. The frequency with which materials were adapted from high school was not consistent with the composition of the target student group identified for this study. In order to provide instruction that is more consistent with the content of State C's alternate assessment aligned to grade level expectations, teachers may require more professional development on how to adapt materials and activities from grade levels that match the chronological age of their students.

Finally, teachers' responses to survey questions about instructional influences suggest that there may be room for growth in their ways of building access to the general curriculum. There was not widespread indication that state academic standards have a strong influence on the academics they teach, nor did it appear that teachers relied on their general education counterparts for assistance in developing curriculum access. Increasing student access to the general education curriculum and better aligning instruction in order to increase academic achievement may require more professional development and strengthened relationships with general educators in the same schools.

Short version: Appendix

English Language Arts

- E1** Distribution of ELA Content Taught, by Depth of Knowledge
- E2** ELA Instructional Methods and Level of Student Participation
- E3** Frequency of Teachers Using Various Resources to Teach ELA
- E4** Teacher-Reported Influences on ELA Instruction
- E5** Frequency of Use of Classroom Assessments – ELA

Math

- M1** Distribution of Math Content Taught, by Depth of Knowledge
- M2** Math Instructional Methods and Level of Student Participation
- M3** Frequency of Teachers Using Various Resources to Teach Math
- M4** Teacher-Reported Influences on Math Instruction
- M5** Frequency of Use of Classroom Assessments – Math

Science

- S1** Distribution of Science Content Taught, by Depth of Knowledge
- S2** Science Instructional Methods and Level of Student Participation
- S3** Frequency of Teachers Using Various Resources to Teach Science
- S4** Teacher-Reported Influences on Science Instruction
- S5** Frequency of Use of Classroom Assessments – Science

In each subject, the first two tables are based on academic section of CIS (Part 3, 4, or 5; referenced to the target student), while the last three are based on Part 1 (General classroom information; not about a specific target student).

Table E.1. Distribution of ELA Content Taught, by Depth of Knowledge (N = 7)

Item	LANGUAGE	N	Attention		Mem/Recall		Perform		Comprehend		Apply		An/Syn/Eval	
			n	%	n	%	n	%	n	%	n	%	n	%
A1	Discussion (discussion rules, group interactions)	6	1	16.7		0.0	3	50.0	1	16.7	1	16.7		0.0
A2	Questioning, Listening, and Contributing (class discussion contributions, gathering information)	7	2	28.6	1	14.3	2	28.6	2	28.6		0.0		0.0
A3	Oral Presentation (presentation elements and techniques, presentation preparation)	4	1	25.0	1	25.0	2	50.0		0.0		0.0		0.0
A4	Vocabulary and Concept Development (antonyms, synonyms, compound words, prefixes, suffixes, dictionary use, use in context)	6	2	33.3	1	16.7	2	33.3	1	16.7		0.0		0.0
A5	Structure and Origins of Modern English (grammar, mechanics, parts of speech)	4	2	50.0	2	50.0		0.0		0.0		0.0		0.0
A6	Formal and Informal English (standard vs. conversational language)	3	1	33.3	1	33.3	1	33.3		0.0		0.0		0.0
	Total	30	9	30.0	6	20.0	10	33.3	4	13.3	1	3.3	0	0.0
READING AND LITERATURE														
B1	Beginning Reading (letters, handling of a book, phonemic awareness, letter/sound combinations, decode words)	6		0.0		0.0	2	33.3	2	33.3	1	16.7	1	16.7
B2	Understanding a Text (predictions, retell stories, cause/effect, story elements, imagery, symbolism)	6		0.0		0.0	3	50.0	3	50.0		0.0		0.0
B3	Making Connections (compare authors, illustrators, settings)	6	1	16.7	3	50.0		0.0	2	33.3		0.0		0.0
B4	Genre (forms of literature- poetry, prose, fiction, nonfiction, drama)	5	3	60.0	2	40.0		0.0		0.0		0.0		0.0
B5	Theme (lessons of folktales, fables, myths, theme identification)	4	2	50.0	2	50.0		0.0		0.0		0.0		0.0
B6	Fiction (plot, character, setting identification of stories)	5		0.0	5	100.0		0.0		0.0		0.0		0.0
B7	Nonfiction (meaning, prediction, and fact identification of informational material)	6	1	16.7	3	50.0	1	16.7	1	16.7		0.0		0.0
B8	Poetry (rhythm and rhyme, repetition, imagery, figurative language)	3	1	33.3	1	33.3	1	33.3		0.0		0.0		0.0

Item	READING AND LITERATURE (cont.)	N	Attention		Mem/Recall		Perform		Comprehend		Apply		An/Syn/Eval	
			n	%	n	%	n	%	n	%	n	%	n	%
B9	Style and Language (words that appeal to the senses, imagery, figurative language, flow)	4	1	25.0	1	25.0	2	50.0		0.0		0.0		0.0
B10	Myth, Traditional Narrative, and Classical Literature (characters in mythology, adventures/exploits of characters)	4	3	75.0	1	25.0		0.0		0.0		0.0		0.0
B11	Dramatic Literature (elements of dialogue, elements of drama, role play)	3	3	100.0		0.0		0.0		0.0		0.0		0.0
B12	Dramatic Reading and Performance (rehearsal and performance of stories, plays, poems, voice inflection)	4	3	75.0		0.0	1	25.0		0.0		0.0		0.0
	Total	56	18	32.1	18	32.1	10	17.9	8	14.3	1	1.8	1	1.8
COMPOSITION														
C1	Writing (use of pictures, letters, words to write stories, poems, letters, reports)	6		0.0	2	33.3	3	50.0		0.0	1	16.7		0.0
C2	Consideration of Audience and Purpose (language to match audience and purpose-entertain, persuade, inform)	3	1	33.3	2	66.7		0.0		0.0		0.0		0.0
C3	Revising (clarification/rethinking for logic and expression)	3		0.0	1	33.3	2	66.7		0.0		0.0		0.0
C4	Standard English Conventions (legible print/cursive, spacing of words, spelling, end marks, punctuation)	5	1	20.0	1	20.0	2	40.0		0.0	1	20.0		0.0
C5	Organizing Ideas in Writing (order of events, details, logical progression)	4		0.0	2	50.0	2	50.0		0.0		0.0		0.0
C6	Research (gather information about a topic, steps of conducting research)	4	2	50.0		0.0	2	50.0		0.0		0.0		0.0
C7	Evaluating Writing and Presentations (decisions and judgments about writing; use of scoring rubrics)	1	1	100.0		0.0		0.0		0.0		0.0		0.0
	Total	26	5	19.2	8	30.8	11	42.3	0	0.0	2	7.7	0	0.0

Item	MEDIA	N	Attention		Mem/Recall		Perform		Comprehend		Apply		An/Syn/Eval	
			n	%	n	%	n	%	n	%	n	%	n	%
D1	Analysis of Media (text/film/play/website comparison)	2	1	50.0		0.0	1	50.0		0.0		0.0		0.0
D2	Media Production (PowerPoint or other technological presentation, video/audio tape)	3		0.0	1	33.3	2	66.7		0.0		0.0		0.0
Total		5	1	20.0	1	20.0	3	60.0	0	0.0	0	0.0	0	0.0

Table E.2. ELA Instructional Methods and Level of Target Student's Participation (N = 10)

ELA/reading instructional time during the past week in which the target student engaged in each of the following						Level of Student Participation			
	0 None	1 Little (1 hour or less last week)	2 Some (2-4 hours last week)	3 Moderate (5-7 hours last week)	4 Considerable (8 or more hours last week)	N No Partici- pation	P Passive Partici- pation	AS Active Participa- tion with Supports	IA Independent Active Participation
Receive individualized instruction	0	1	3	2	4	0	0	8	2
Receive instruction in a small group	1	2	3	0	4	0	2	4	3
Collect, summarize, or analyze information	6	3	1	0	0	2	1	4	0
Engage in writing process	4	1	3	1	1	2	1	5	0
Learn to use resources	4	5	0	0	1	3	0	4	1
Use hands-on or manipulatives	4	1	1	1	3	2	0	4	2
Receive instruction with prompts or scaffolded support	2	1	4	1	2	1	0	7	1
Use computers or other assistive technology	0	3	5	1	1	0	0	5	5
Work independently	0	2	6	0	2	0	0	3	7
Perform assessment skills for data collection/grading	4	0	3	2	1	2	0	2	4
Take a test	6	3	0	0	1	2	0	3	1
Practice skills in different setting	2	3	2	3	0	2	0	7	1
Practice skills with a variety of similar materials	3	1	4	2	0	2	0	6	1
Engage in read aloud activities	4	0	5	1	0	2	1	4	1
View multi media presentations	7	2	0	1	0	3	1	1	1
Engage in speech or presentation	8	0	1	0	1	3	2	1	0
Use work center	4	2	3	1	0	2	0	3	3
Learn/demonstrate skills in repeated opportunity/direct instruction trials	2	1	4	2	1	1	0	7	2

Table E.3. Frequency of Teachers Using Various Resources to Teach ELA (N = 11)

	Used to teach ELA/Reading
Materials	
Commercially made materials adapted (by you or someone else) from general education	6
Commercially made manipulatives adapted (by you or someone else) from general education	4
Age-appropriate, commercially made print or text materials <i>designed for this type of student</i>	5
Age-appropriate, commercially made manipulatives <i>designed for this type of student</i>	3
Other commercially made print or text materials <i>designed for this type of student</i>	3
Other commercially made age-appropriate manipulatives <i>designed for this type of student</i>	1
Teacher-made books, workbooks, materials	10
Teacher-made manipulatives	6
Materials or lessons from websites	7
Computer	8
Assistive technologies (e.g., CheapTalk, Big Mac, Dynavox, text reader, talking calculator, etc.)	6
Settings	
Real life or natural setting materials (e.g., coins, community signs, telephones)	8
Inclusive class setting	4
Other settings in my school	3
Other settings in the community	4
People	
Nondisabled peers	1
Teachers from other disciplines (e.g., academic or special subject areas)	1
Another staff member at the school (e.g., speech/occupational/physical therapist)	6
Other special education teachers	4

Table E.4. Teacher-Reported Influences on ELA Instruction (N = 11)

	No influence	Minimal influence	Moderate influence	Strong influence
State curriculum framework or content standards	0	3	4	4
Instructional materials	2	2	4	3
State alternate assessment requirements	0	3	3	5
State alternate assessment results from previous years	5	3	1	2
National ELA standards	5	3	1	2
ELA content, materials, and/or activities used by general education teachers in my school	4	4	1	2
Training from my degree program (undergraduate or graduate)	1	2	5	3
Students' needs as documented on IEPs	0	0	0	11
School or district initiatives or priorities	3	4	3	1
Principal or other administrator expectations	2	4	3	2
Professional development experiences	1	3	4	3
Classroom assessment results	2	0	2	7

Table E.5. Frequency of Reported Use of Classroom Assessments – ELA (N = 11)

	Not at all	< 1 time per month	1-4 times a month	1-4 times a week	> 4 times a week
Objective questions (e.g., true/false, multiple choice, yes/no)	3	0	1	4	2
Performance on-demand (e.g., task analysis steps, repeated trials, incidence recording)	0	1	1	5	3
Teacher observation (e.g., anecdotal or descriptive data)	1	1	0	5	3

Table M.1. Distribution of Math Content Taught, by Depth of Knowledge (N = 7)

Item	Number Sense and Operations	Attention		Mem/Recall		Perform		Comprehend		Apply		An/Syn/Eval		
		N	n	%	n	%	n	%	n	%	n	%	n	%
A1	Number Sense (whole numbers, fractions, odd & even, sorting, matching, grouping, ordering; money)	7	1	14.3		0.0	5	71.4		0.0	1	14.3		0.0
A2	Operations (+, -, x /, commutative properties, order of operations)	5		0.0		0.0	4	80.0		0.0	1	20.0		0.0
A3	Computation and Estimation (comparisons, rounding, properties of addition, subtraction, multiplication, division)	5		0.0	1	20.0	3	60.0	1	20.0		0.0		0.0
	Total	17	1	5.9	1	5.9	12	70.6	1	5.9	2	11.8	0	0.0
Patterns, Relations, and Algebra														
B1	Patterns, Relations, and Functions (identify, reproduce, create, count in patterns)	7	2	28.6	2	28.6	2	28.6	1	14.3		0.0		0.0
B2	Algebra (symbolic representations, variables, algebraic equations)	3	3	100.0		0.0		0.0		0.0		0.0		0.0
B3	Relationships and Mathematical Models (equivalent measurements, mathematical relationships, proportions)	6	2	33.3	3	50.0	1	16.7		0.0		0.0		0.0
B4	Variables and Change (process and rates of change, linear equations)	1	1	100.0		0.0		0.0		0.0		0.0		0.0
	Total	17	8	47.1	5	29.4	3	17.6	1	5.9	0	0.0	0	0.0
Geometry														
C1	Characteristics of Geometric Shapes (two and three dimensional shapes, congruent shapes)	6	2	33.3	1	16.7		0.0	2	33.3	1	16.7		0.0
C2	Spatial Relationships/ Coordinate Geometry (coordinates, points on a line)	4	2	50.0	1	25.0		0.0	1	25.0		0.0		0.0
C3	Transformation/Symmetry (flipped, turned shapes, line and rotational symmetry)	2	1	50.0		0.0		0.0		0.0	1	50.0		0.0
C4	Visualization/Spatial Reasoning/Geometric Modeling (assembled and disassembled shapes, use of tools (e.g., ruler, compass) to create geometric figures)	4	2	50.0	1	25.0		0.0	1	25.0		0.0		0.0
	Total	16	7	43.8	3	18.8	0	0.0	4	25.0	2	12.5	0	0.0

Item	Measurement	N	Attention		Mem/Recall		Perform		Comprehend		Apply		An/Syn/Eval	
			n	%	n	%	n	%	n	%	n	%	n	%
D1	Measurement Tools (clock, calendar, cylinder, tape measure, ruler)	7	1	14.3		0.0	3	42.9	1	14.3	2	28.6		0.0
D2	Concepts and Attributes of Measurement (length, weight, volume, capacity)	6	1	16.7		0.0	4	66.7		0.0	1	16.7		0.0
D3	Formulas of Measurement (area, perimeter, radius, diameter, circumference)	4	3	75.0		0.0	1	25.0		0.0		0.0		0.0
	Total	17	5	29.4	0	0.0	8	47.1	1	5.9	3	17.6	0	0.0
Data Analysis, Statistics, And Probability														
E1	Data and Statistics (data collection and organization, mean, median, mode, use of plots and graphs)	5	1	20.0	3	60.0		0.0	1	20.0		0.0		0.0
E2	Probability (cause/effect, probabilities, combinations of potential outcomes)	6	2	33.3	3	50.0	1	16.7		0.0		0.0		0.0
	Total	11	3	27.3	6	54.5	1	9.1	1	9.1	0	0.0	0	0.0

Table M.2. Math Instructional Methods and Level of Target Student's Participation (N = 10)

How much of math instructional time during the past week did the target student engage in each of the following?	0 None	1 Little (1 hour or less last week)	2 Some (2-4 hours last week)	3 Moderate (5-7 hours last week)	4 Considerable (8 or more hours last week)	level of student participation with each instructional activity			
						N No Participation	P Passive Participation	AS Active Participation with Supports	IA Independent Active Participation
Receive individualized instruction	0	1	3	2	4	0	0	9	1
Receive instruction in a small or large group	3	1	2	2	2	2	0	7	0
Collect, summarize, or analyze information	6	2	2	0	0	2	1	4	0
Complete symbolic math problems	5	2	1	1	1	2	0	2	3
Learn to use resources	6	2	1	0	1	2	0	3	0
Use hands-on or manipulatives to count or solve mathematical problems	1	2	3	2	2	1	0	7	2
Receive instruction with prompts or scaffolded support	2	1	4	1	2	2	0	8	0
Use computers, calculators or other assistive technology	3	1	6	0	0	1	1	4	2
Work independently	2	2	4	0	2	2	0	3	4
Perform assessment skills for data collection/grading	4	1	3	1	1	2	0	3	2
Take a test	7	2	0	0	1	2	0	3	1
Practice skills in different setting	4	3	0	1	1	2	0	5	0
Rote count	4	4	1	0	1	2	1	3	2
Practice skills with a variety of materials	3	2	3	1	1	2	2	4	1
Apply mathematical concepts to real world applications	3	3	3	0	1	2	1	6	0
Use work center	6	1	2	0	1	3	1	1	2
Learn/demonstrate skills in repeated opportunity/direct instruction trials	3	3	2	1	1	2	1	5	1

* Rated only for target students who received little, some, moderate, or considerable instruction using this method.

Table M.3. Frequency of Teachers Using Various Resources to Teach Math (N = 11)

	Used to teach Math
Materials	
Commercially made materials adapted (by you or someone else) from general education	7
Commercially made manipulatives adapted (by you or someone else) from general education	8
Age-appropriate, commercially made print or text materials <i>designed for this type of student</i>	3
Age-appropriate, commercially made manipulatives <i>designed for this type of student</i>	5
Other commercially made print or text materials <i>designed for this type of student</i>	3
Other commercially made age-appropriate manipulatives <i>designed for this type of student</i>	1
Teacher-made books, workbooks, materials	10
Teacher-made manipulatives	9
Materials or lessons from websites	6
Computer	8
Assistive technologies (e.g., CheapTalk, Big Mac, Dynavox, text reader, talking calculator, etc.)	5
Settings	
Real life or natural setting materials (e.g., coins, community signs, telephones)	8
Inclusive class setting	5
Other settings in my school	6
Other settings in the community	5
People	
Nondisabled peers	1
Teachers from other disciplines (e.g., academic or special subject areas)	1
Another staff member at the school (e.g., speech/occupational/physical therapist)	6
Other special education teachers	3

Table M.4. Teacher-Reported Influences on Math Instruction (N = 11)

	No influence	Minimal influence	Moderate influence	Strong influence
State curriculum framework or content standards	0	4	3	4
Instructional materials	1	4	3	3
State alternate assessment requirements	0	4	3	4
State alternate assessment results from previous years	5	3	0	3
National math standards	5	3	2	0
Math content, materials, and/or activities used by general education teachers in my school	5	1	3	2
Training from my degree program (undergraduate or graduate)	2	3	2	4
Students' needs as documented on IEPs	0	0	0	10
School or district initiatives or priorities	3	2	4	1
Principal or other administrator expectations	2	4	4	1
Professional development experiences	1	3	3	4
Classroom assessment results	2	0	2	7

Table M.5. Frequency of Reported Use of Classroom Assessments – Math (N = 11)

	Not at all	< 1 time per month	1-4 times a month	1-4 times a week	> 4 times a week
Objective questions (e.g., true/false, multiple choice)	3	1	1	5	1
Performance on-demand (e.g., data collected on student performance of task analysis steps)	0	0	1	6	4
Teacher observation	1	0	0	3	7

Table S.1. Distribution of Science Content Taught, by Depth of Knowledge (N = 7)

Item	Earth and Space Science	Attention			Memorize/Recall		Perform		Comprehend		Apply		An/Syn/Eval		
		N	n	%	n	%	n	%	n	%	n	%	n	%	
A1	Structure and energy in the Earth's system. (Weather, minerals, rocks)	7	3	42.9	1	14.3	1	14.3	2	28.6		0.0		0.0	
A2	History, origin, and evolution of the earth and the universe. (Changes in the Earth's surface, Big Bang Theory)	3	1	33.3	1	33.3	1	33.3		0.0		0.0		0.0	
A3	Earth, the Solar System, and objects in the sky. (Moon phases, tides, tilt of the earth, motion of the Earth)	5	3	60.0	1	20.0	1	20.0		0.0		0.0		0.0	
	Total	15	7	46.7	3	20.0	3	20.0	2	13.3	0	0.0	0	0.0	
Life Science (Biology)															
B1	Characteristics of organisms (Organ systems, plants and animals, plant structures)	7	3	42.9	2	28.6	1	14.3	1	14.3		0.0		7	
B2	Life cycles of organisms (birth, development, reproduction, death)	5	2	40.0	2	40.0		0.0	1	20.0		0.0		5	
B3	Organisms and environments, populations, and ecosystems (extinction, food web, changes in ecosystems)	4	1	25.0	2	50.0	1	25.0		0.0		0.0		4	
B4	Cellular and molecular basis of life. (animal cells, multi-cellular organisms, organic molecules, types of cells, organelles)	3	3	100.0		0.0		0.0		0.0		0.0		3	
B5	Reproduction and heredity, diversity, adaptations, and evolution of organisms. (traits and genes, reproduction, Mendel, Punnett squares, DNA, natural selection, biodiversity)	3	2	66.7	1	33.3		0.0		0.0		0.0		3	
B6	Regulation and behavior of organisms (Instinct and learned behavior, animal and plant behaviors, interaction with the environment)	3	1	33.3	2	66.7		0.0		0.0		0.0		3	
B7	Matter, energy, and organization in living systems	4	3	75.0		0.0	1	25.0		0.0		0.0		4	
B8	Personal and Community Health (diseases, nutrition, fitness, environmental hazards)	7	2	28.6		0.0	2	28.6	3	42.9		0.0		7	
	Total	36	17	47.2	9	25.0	5	13.9	5	13.9	0	0.0	0	36	

Item	Physical Science (Chemistry and Physics)	Attention			Memorize/Recall		Perform		Comprehend		Apply		An/Syn/Eval	
		N	n	%	n	%	n	%	n	%	n	%	n	%
C1	Properties of matter (size, shape, color, states of matter, weight and mass, elements and compounds, periodic table)	5	4	80.0		0.0		0.0	1	20.0		0.0		0.0
C2	Chemical and physical changes in matter. (changes in state, boiling and melting points, bonding, reactions, chemical equations, acids and bases)	5	4	80.0		0.0		0.0	1	20.0		0.0		0.0
C3	Motion and forces (speed and velocity, mass and inertia, vectors, Newton's laws, waves)	3	2	66.7	1	33.3		0.0		0.0		0.0		0.0
C4	Energy (conservation of energy, forms of energy, electricity, magnets, light, sound, heat, potential and kinetic energy, temperature)	4	2	50.0	1	25.0	1	25.0		0.0		0.0		0.0
C5	Atomic theory (Atoms and molecules, fission and fusion, nuclear reactions, Lewis dot structures)	2	2	100.0		0.0		0.0		0.0		0.0		0.0
	Total	19	14	73.7	2	10.5	1	5.3	2	10.5	0	0.0	0	0.0
Technology /Engineering														
D1	Materials and Tools (uses of materials, proper uses, machines, technology, invention)	6	2	33.3	3	50.0		0.0	1	16.7		0.0		0.0
	Total	6	2	33.3	3	50.0	0	0.0	1	16.7	0	0.0	0	0.0
History/Nature of Science														
E1	Science as a human endeavor. (diversity among scientists, talents and skills of scientists)	2	2	100.0		0.0		0.0		0.0		0.0		0.0
E2	Nature of science (scientific method, hypotheses, laws, and theories)	3	2	66.7	1	33.3		0.0		0.0		0.0		0.0
E3	History of science (Science in different cultures, rate of advancement, scientific revolutions)	1	1	100.0		0.0		0.0		0.0		0.0		0.0
	Total	6	5	83.3	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0

Item	Science as Inquiry	N	Attention		Memorize/Recall		Perform		Comprehend		Apply		An/Syn/Eval	
			n	%	n	%	n	%	n	%	n	%	n	%
F1	Understanding of and abilities necessary to do scientific inquiry. (Asking questions, forming hypotheses, conducting experiments)	4	4	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	4	4	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table S.2. Science Instructional Methods and Level of Target Student's Participation (N = 10)

						Level of student participation			
	0 None	1 Little (1 hour or less last week)	2 Some (2-4 hours last week)	3 Moderate (5-7 hours last week)	4 Considerable (8 or more hours last week)	N No Partici- pation	P Passive Partici- pation	AS Active Participa- tion with Supports	IA Independent Active Participation
Receive individualized instruction	2	4	1	1	2	1	3	4	
Receive instruction in a small group		1	4	3	2	2	3	5	
Collect, summarize, or analyze information	4	3	2		1	1	2	4	
Engage in inquiry processes	3	5	1		1	2	3	3	
Learn to use resources	3	5	1		1		2	5	
Use hands-on materials or manipulatives	3	1	4	1	1	4	2	4	
Receive instruction with prompts or scaffolded support	2	2	3	2	1	1	2	5	
Use computers or other assistive technology	3	2	3		2	3	3	4	
Work independently	4	4			2	4	2	3	1
Perform assessment skills for data collection/grading	6	3			1	3	3	1	1
Take a test	6	3			1	3	3	1	1
Practice skills in different setting	5	3		1	1	3	2	3	1
Practice skills with a variety of similar materials	2	2	2		4	3	2	5	
Engage in read aloud activities	4	2	3	1		1	3	3	
View multi media presentations	7	3				3	1	3	
Engage in speech or presentation	9	1				5	1	1	
Use work center	8	2				5	1	1	
Learn/demonstrate skills in repeated opportunity/direct instruction trials	5	3	1		1	2	1	5	

Table S.3. Frequency of Teachers Using Various Resources to Teach Science (N = 11)

	Used to teach Science
Materials	
Commercially made materials adapted (by you or someone else) from general education	7
Commercially made manipulatives adapted (by you or someone else) from general education	3
Age-appropriate, commercially made print or text materials <i>designed for this type of student</i>	3
Age-appropriate, commercially made manipulatives <i>designed for this type of student</i>	3
Other commercially made print or text materials <i>designed for this type of student</i>	2
Other commercially made age-appropriate manipulatives <i>designed for this type of student</i>	1
Teacher-made books, workbooks, materials	10
Teacher-made manipulatives	7
Materials or lessons from websites	8
Computer	7
Assistive technologies (e.g., CheapTalk, Big Mac, Dynavox, text reader, talking calculator, etc.)	5
Settings	
Real life or natural setting materials (e.g., coins, community signs, telephones)	5
Inclusive class setting	7
Other settings in my school	2
Other settings in the community	3
People	
Nondisabled peers	3
Teachers from other disciplines (e.g., academic or special subject areas)	2
Another staff member at the school (e.g., speech/occupational/physical therapist)	3
Other special education teachers	4

Table S.4. Teacher-Reported Influences on Science Instruction (N = 11)

	No influence	Minimal influence	Moderate influence	Strong influence
State curriculum framework or content standards	2	3	2	4
Instructional materials	0	3	5	3
State alternate assessment requirements	1	3	3	1
State alternate assessment results from previous years	5	3	0	3
National science standards	5	5	0	1
Science content, materials, and/or activities used by general education teachers in my school	3	2	5	1
Training from my degree program (undergraduate or graduate)	2	4	4	1
Students' needs as documented on IEPs	0	0	0	11
School or district initiatives or priorities	3	3	5	0
Principal or other administrator expectations	3	4	4	0
Professional development experiences	2	6	3	0
Classroom assessment results	2	0	3	6

Table S.5. Frequency of Reported Use of Classroom Assessments – Science (N = 11)

	Not at all	< 1 time per month	1-4 times a month	1-4 times a week	> 4 times a week
Objective questions (e.g., true/false, multiple choice, yes/no)	2	1	4	1	3
Performance on-demand (e.g., task analysis steps, repeated trials, incidence recording)	1	2	0	5	3
Teacher observation (e.g., anecdotal or descriptive data)	0	0	2	3	6