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This study investigates curriculum support through a content analysis of the OPACs of three public library systems in North Carolina's Triangle region: Wake County Public Libraries, Durham County Libraries, and the Hyconeechee Regional Library System. The results of the analysis are used to determine the relative extent to which these systems support the curricular need of local students, where the concept of "curriculum support" is measured in terms of the number of titles and age of their publication. Results indicate that these library systems make an effort to support students' academic information needs, but that coverage of curricular subjects is often imbalanced and lacks a purposeful approach to collection development.

Headings:

Public libraries -- North Carolina

Public libraries - Services to young adults

Public libraries - Collection development

Public libraries - Evaluation

CURRICULUM SUPPORT IN PUBLIC LIBRARIES:
A DESCRIPTIVE ANALYSIS OF COLLECTIONS IN
NORTH CAROLINA'S TRIANGLE REGION

by
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Chapter One: Introduction

Secondary school students make up a substantial user group in public libraries (Jones et al. 2004). In addition to pleasure reading, these students also use the public library to supplement resources they find in their school libraries to complete homework, research assignments, and projects. Despite the seemingly overwhelming agreement today that public libraries ought to serve young adults by collecting materials which complement the curriculum, there is little uniformity in how this goal is actually practiced. The variety of materials and services differs widely, making it useful to take a closer look at particular libraries to investigate the current state of affairs. This study focuses on three North Carolina public library systems - Wake County Public Libraries, Durham County Libraries, and the Hyconeechee Regional Library System - and describes the non-fiction materials in the collections which support the North Carolina Standard Course of Study. This is the prescribed curriculum for all North Carolina public schools (Public Schools of North Carolina). This study is specifically concerned with public library collection support for ninth grade curricular needs.

This study is informed by research in both the library science and education disciplines. In terms of library science, the issue of serving young adults and their academic information needs is traditionally framed by studies of how young adults locate and use information in libraries, and how those libraries select materials to meet their needs. Most of the research centers around the school library (also widely referred to as the school media center), and its role in supporting the curriculum of the school and the students it serves. Because the

research presented here is concerned with the availability of non-fiction works, it is also situated within the larger field of general reference and information-seeking studies.

The second research area connected with this research is education-related literature. The relationship between students and libraries is most typically approached by looking at the impact of learning resources on a student's education and performance. This category of research also tends to discuss the availability of resources, where and to whom students look for information, and what they choose from available sources. Again, perhaps because of the proximity and familiarity between schools and school libraries, these are the libraries that receive the most mention in the education research.

Specifically, the research described in this paper fits into the niche of public libraries and their efforts to support the needs of high school students through their collection. Much of the literature in this area deals with programming with an emphasis on homework help desks, homework clubs, and the like from public libraries. While some research exists, there appears to be a lack of empirical research in the area of high school curricular requirements and its impact on public library collections. The research presented here is intended to begin the process of filling this gap.

Research Questions:

This research explores the following research questions:

1. What is the relationship between the requirements of the North Carolina Standard Course of Study for Grade Nine and the non-fiction resources collected by library systems in the Triangle region?
2. What are the relative strengths and weaknesses of the library systems' general and subject collections?

3. What are the relative strengths and weaknesses among the subject collections of the individual library systems?

Purpose and Objectives:

The purpose of the research presented here is to describe and compare the non-fiction collections of selected library systems from North Carolina's Triangle region in relation to the requirements of the state's prescribed curriculum areas and goals. This research was conducted in order to provide a better understanding of the current state of affairs in local public library systems, and to draw some general conclusions about how thoroughly the studied systems support local students' curricular needs. The research examines the non-fiction collections by academic subject, and describes differences of relative collection strength within each individual library. Additionally, this research describes what relative strengths and weaknesses exist among the subject and general collections of the three library systems studied. Finally, the results of the content analysis will be used to make recommendations for professional practice.

Chapter Two: Literature Review

The review is divided into two main categories: essays and studies which examine the use and users of curricular materials in public libraries and descriptive studies examining curriculum support conditions at a specific library or small group of libraries.

Young Adults and the Public Library:

The literature discussed here suggests that libraries recognize young adults' academic information needs, and try to meet those needs through their collections, programming, and services. As mentioned, a large portion of the literature surrounding curriculum support in public libraries centers around understanding who benefits from and uses these collections. The largest and most commonly identified group is the traditional secondary students; that is, those students attending public high schools.

A study conducted by Fitzgibbons and Pungitore (1989) on educational programming and resources in Indiana public libraries provides interesting evidence about how public libraries attempted to support the information needs of local students. The researchers administered a questionnaire to 239 public libraries in the state which asked about the educational materials, reference services, instruction, and miscellaneous support they offered to learners. The survey encompassed the whole spectrum of users, and was broken down into three categories - children, young adults, and adults. The results of the young adult portion of the study indicate a generally positive view of educational support in the public libraries polled. Eighty percent of the libraries reported having young adult materials, both curricular-

related and non-curricular related, in their libraries. Seventy-seven percent indicated their libraries provided reference services for homework support. The data from the libraries also implied that 80% of young adults “were able to find materials to supplement schoolwork” (Fitzgibbons & Pungitore 4). This is a somewhat problematic assumption, since it represents the perceptions of the librarians and not the teens themselves. Therefore, this assertion is perhaps better stated as “librarians believe most teens could find materials to supplement schoolwork.”

In a related study, Winston and Paone (2001) conducted a survey of New Jersey public libraries to measure the current state of young adult services, staffing, and collections in those institutions. Their survey revealed a wide array of services offered, job titles used, and staff duties, some of which are particularly applicable to this study. For example, 31% of libraries reported offering homework help for students. In an interesting set of questions designed to determine how young adults use the resources available, the data suggested that over half (56.3%) of librarians polled believed that young adults primarily tried to locate materials on their own, without the assistance of the librarian. These results suggest that public libraries depend more on materials than services and programming to meet the academic information needs of their young adult users. Problematically, many young adults may actually miss what materials public libraries do have due to their perceived unwillingness to ask library staff how to find things; Fidel, et al. (1999) note this groups’ difficulties in navigating information retrieval systems independently.

Swenor (2006) reports on a related survey which also sought to measure attitudes of teenagers toward public libraries. This survey, which was conducted online at SmartGirl.org, was aimed at determining teenagers’ opinions of their library use and

interactions. The sample was biased toward female subjects, as one would expect given the website on which the survey was administered, but male subjects were included. The results indicated that teens utilize libraries for reading materials. Of all types of reading, assigned reading, or reading for school, is the third largest category for teens, at 17%. The study also suggested that teens get more of their reading materials from public libraries than from school libraries, although the two types of institutions were only separated by a 2% gap (17% and 15%, respectively). Since the study did not break down where teens accessed their reading materials by type of material, it is impossible to conclusively determine from this study whether more school-related materials were accessed from the public library or from the school library. Nevertheless, this data suggests the public library plays an important role in meeting the information needs of teenagers, teens are aware that the library seeks to serve them, and academic reading makes up a significant portion of their overall reading.

Another body of literature addresses how curriculum support in public libraries aids students who are unable to access a school library. Vaillancourt (2000) wrote an opinion piece concerning how public libraries meet the needs of students who have difficulty using their school library due to after-school obligations. For instance, students who take care of siblings after school, participate in extra-curricular activities, or depend on the bus for transportation often fall into this category. Since the school library is generally open only during and perhaps immediately after school, this is a serious problem for many students if their teachers do not provide library time during class. The implication is that these students must then depend on the public library to support their research and study needs, because the more flexible schedule better suits their lives.

Another group without access to a school library is home-schooled children, who make up an influential and noticeable user group in many public libraries. According to Kleist-Tesch (1998) statistics show the number of American families choosing to home-school their children is increasing rapidly. Her figures indicate the number of home-schooled children in this country to be as high as 353,500 students in 1991, 650,000 students in 1995, and as many as 1.2 million students in 1997. Data from the US Department of Education's National Center for Education Statistics differs, but this is to be expected as home-schooled children are notoriously difficult to count given the legal fears and disinclination of many home-schooling families to identify themselves. The NCES (2004) reports 850,000 home-schooled students in 1999 and 1,096,000 in 2003. Whatever the actual count of these students is, it is apparent that there are a large number of these users, and that number increases every year.

Halvestadt (1995), in her essay about public libraries in Douglas County, Colorado, adds to this body of work by including charter school students in her discussion of users who rely on the public library for curricular support. The author witnessed a marked increase in the use and circulation of children's and young adult materials in her library over a period of time. She drew the conclusion from her observations that this phenomenon was most likely linked to the coincidental rise in charter- and home-schooled children in the area. The library served a community with approximately 450 charter students (students attending alternative public schools) and 800 home-schooled students. For these groups she argued that "the public library is their school library" (16).

Finally, Martin (1963) identifies another user group – the above-average, gifted student. In a study conducted at a Baltimore public library, Martin collected data which

indicated that students he classified as “above-average” borrowed more books per month from both the school and public library than the “average” student. In the case of the public library, it was nearly twice as many books: 3.2 per month for the average student and 6.1 per month for the above-average student. The explanation he provides is that the college preparatory classes these exceptional students take require materials for more in-depth research, outside reading, and detailed subject matter than the school library is more able to accommodate. The public library, since it also caters to an adult audience, is more able to provide these resources and often becomes the accelerated student’s preferred source.

Curriculum Support Trends in Public Libraries:

The studies making up the second type of literature dealing with curriculum support in public libraries share several common characteristics. These studies tend to focus on one library or one system of libraries. Many also tend to look at young adult usage in a broad context; they examine academic and leisure reading, use of library services, participation in programs. Additionally, many of these studies take a comparative approach, and weigh the roles and usages of the public library against that of the school library.

In a foundational work, Martin (1963) investigated students’ use of Baltimore’s Enoch Pratt Free Library. When this study was conducted, the Pratt Library, the central branch of the Baltimore public library system, was experiencing a sharp increase in young adult use due to the population affects of the baby boom. Martin’s study was largely an attempt to gain insight into a then relatively unstudied user group, and he used questionnaires administered to student users to gather data about their behaviors.

The results of Martin's study point toward a system that was both used and needed by the student community. The survey indicated that 49.3% of city's public school students, 59.4% of county public school students, and 60% of Catholic school students found their school libraries inadequate for supporting their studies. Conversely less than 20% of all these groups found the public library inadequate. It is also telling that 77.2% of students polled said they preferred to use the public library rather than their school library.

A study conducted by Doll (1995) studied the relationship between public library materials students' academic information needs. Her study was based on the understanding, taken from Woolls' (1986) work, that 80% of public libraries provide materials for homework support, and that young people use public libraries for study needs as well as entertainment. Her work compared three public libraries and three nearby school library media centers, and used the topics selected from the subjects of science and English to represent curricular needs. She aimed to gauge the usefulness of the six collections through three means; first, by counting the number of books that matched specified subject searches, by measuring their currency, and by comparing the collections to the bibliographies in a standard subject textbook.

Doll's work found that overall public libraries carried more books in the studied subjects, but school libraries carried a higher percentage of those books compared to the size of their total collection. The results were mixed as to which type of institution better supported science and English studies. Schools had newer science materials, but the public libraries sometimes had newer English materials. Furthermore, neither type of library consistently rated better in the textbook bibliography test.

One weakness in Doll's study, which the study described in this paper attempts to improve upon, is the way she arrives at her curriculum sample. Instead of using some sort of objective material to look at curricular needs, she instead simply asked students and teachers some of the things they thought would be study topics in her chosen subjects. From there, she chose five topics from. This study uses the North Carolina Standard Course of Study to inform curriculum subjects and topics, in an effort to further objectify the methodology and increase the generalizability of the results.

Summary of Literature Findings:

The literature verifies the issue of curriculum support for secondary students as a wide-reaching goal of most public libraries. Previous research has illuminated the key area of who uses curricular materials, and suggests the ways these materials benefit different audiences - public school students, private and charter school students, home-schooled students, and individual students who are unable to access their school library for a variety of reasons. This supports the need for and importance of this study, as it implies a strong base of users who stand to gain from a better understanding of the state of curricular-focused collections in local public libraries. The research also demonstrates examples of empirical studies which describe curriculum support in a particular setting, the model used for this study.

There are some noticeable gaps in the literature on the topic of curriculum support in public libraries which this study seeks to fill. First, there is a lack of recent studies looking at the issue of curriculum support empirically outside the realm of the school library. The topic is discussed widely in trade journals, however Doll's 1995 work was the last real empirical study done on this particular issue. Because current studies are relatively small in scale, and not able to produce widely generalized conclusions, additional researchers must address this issue in

local and wider-reaching studies in the future if the profession is to understand the state of public library support for the high school curriculum in this country.

Second, while many essays and studies address the issue of services offered for students in public libraries, few seem to address the actual materials for students in much depth. If materials are addressed, they are usually acknowledged as either being present or absent, with little commentary or study given to the state of the collection, its usefulness in supporting curricular needs, or its strength by subject. This study would help remedy this particular gap in the literature by assessing the currency, relevancy, and existence of non-fiction materials in selected public libraries as it relates to those materials' ability to support the curricular needs of students.

Chapter Three: Method

This study was conducted using content analysis, with the unit of analysis being the library system non-fiction collection, as recorded by the systems' OPACs (online public access catalogues). Content analysis is an appropriate method for this study. It allows a controlled definition of what constitutes a resource which supports the ninth grade NC Standard Course of Study curriculum in a given subject, in a manner that random keyword searching or shelf-browsing cannot achieve. Even if these other methods would yield a higher number of titles or a more creative application of the concept of curriculum support, the results would be much more difficult to duplicate in another setting, more subjective, and less reliable.

Furthermore, it is the goal of this study to improve upon Doll's (1995) similarly subjective approach - asking students and teachers for popular topics within two chosen subjects - by using the North Carolina Standard Course of Study to inform topic and subject choices. This is a more objective and uniform way of deciding which topics are included to represent what ninth grade students are most likely to seek from their public library. It must, of course, be admitted that there is wide variety in the manner these state-wide curricular goals are taught; it would be impossible to absolutely represent the exact topics for which North Carolina ninth graders most need resources. However, using the Standard Course of Study as a guide to the average curriculum allows some measure of reliability and validity for the subject and topic choices.

Conceptual and Operational Definitions:

This study relies heavily on an understanding of what it means to support the curriculum of high school students in the public library. Here, this concept will be defined as the providing for and existence of non-fiction materials in the library which cover subjects directly related to the standard high school curriculum. The more of these materials a library holds, and the more current they are, the higher the level of and dedication to curriculum support is indicated. These "materials" can include any physical object including reference books, serials, and circulating non-fiction materials. Non-fiction audiobooks are included in this study, but electronic resources and DVDs/VHS are necessarily outside the scope of the study, for the sake of practical considerations, despite the fact they provide an important source of academic information support.

"Curriculum" is operationalized here by attempting to gain a sense of the typical curriculum followed by North Carolina schools, both public and private, as well as the general curriculum studied by home-schooled students. For the purposes of this study, "curriculum" will be understood in terms of the North Carolina Standard Course of Study (Public Schools of North Carolina). This document highlights the academic subjects which are supposed to be taught to students in each grade, as well as specific learning goals and objectives within each subject. For this study, which focuses on ninth grade students, the corresponding sections addressing the ninth grade curriculum is used. For an abridgment of the portion of the NC Standard Course of Study which applies to this study, see the Appendix. Modeling Doll's (1995) study, English and science are examined, but history, math, and foreign languages are also included in an attempt to broaden her foundational study.

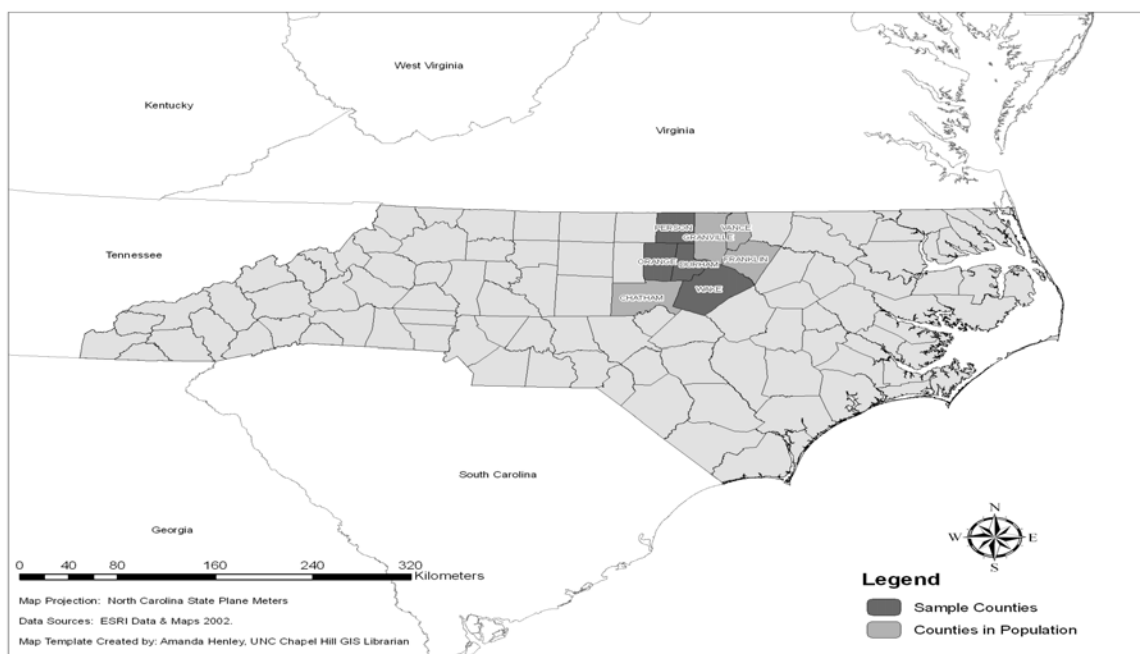
The somewhat nebulous notion of "curriculum support" is measured as a function of

number of relevant titles and the dates of their publication. The relevancy of these titles will be determined according to whether or not they appear in a subject search of the library OPAC when a predetermined list of subject headings are used as the search terms. Finally, the terms “curricular collection” or “curricular holdings” will be used in this paper to describe the aggregate results of these subject searches for each library system.

Sample:

This sampling unit for this study is the individual library system in the Triangle region of North Carolina. This geographic region is most commonly defined as consisting of nine counties in Central North Carolina (see Figure 1). For the purposes of this study, the following counties and library systems will make up the possible geographic areas from which sample library systems could be drawn for inclusion.

Figure 1
Map of Population and Sample Counties



Source: ESRI Data & Maps 2002

Table 1
Triangle Region and Sample Counties

County	Population	Library System	System Web Address
Chatham	49,329	Chatham Public Library	http://www.chathamnc.org/Index.aspx?page=126
Durham	223,314	Durham County Library	http://www.durhamcountylibrary.org/
Franklin	47,260	Franklin County Library	http://www.co.franklin.nc.us/docs/library/new/
Granville	48,498	Granville County Public Library	http://www.granville.lib.nc.us/
Johnston	121,965	Public Library of Johnston County and Smithfield	http://www.co.johnston.nc.us/mainpage.cfm?category_level_id=865
Orange	118,227	Hyconeechee Regional Library System	http://www.co.orange.nc.us/library/hyconeechee/
Person	35,623	Hyconeechee Regional Library System	http://www.co.orange.nc.us/library/hyconeechee/
Vance	42,954	No library system – one central location (H. Leslie Perry Memorial Library)	http://www.perrylibrary.org/
Wake	627,846	Wake County Public Libraries	http://www.wakegov.com/libraries/default.htm

Source: Gade, et al. 2002

The sample used in this study, shown in bold in Table 1, encompasses three systems and four counties, represents 44.4% of the total subject population. The sample library systems are Durham County Library, Wake County Public Libraries, and the Hyconeechee Regional Library System, which serves Orange, Person and Caswell Counties. This is a large enough portion of the population to justify using the study's results to generalize about the library systems of the Triangle region as a whole. Furthermore, the systems chosen for use here are responsible for serving 76.4% of Triangle area residents.

The sample was selected by non-probability convenience sampling (Babbie, 2004);

despite the inherent limitations of this sampling method, it was the most practically usable method for this study. In acknowledgment of the limited time-frame of this study, the sample size was limited to three library systems. Because a relatively small number of systems could be studied, the decision was made to use large systems which would represent the level of curriculum support available to the largest number of people possible.

Procedure:

A selection of standard Library of Congress subject headings was used to inform what part of the collection could be considered to support the curricular needs of ninth grade students in the Triangle region. These subject headings were selected by the researcher to represent, as best as practically possible, the subtopics of each of the NC Standard Course of Study academic subjects which were investigated. The selected subject headings were used as keywords in subject keyword searches in the library systems' OPAC. The majority of the subject heading keywords that were used in the study were selected prior to beginning the data collection process; however, some subject keywords were adjusted in response to the data after the collection process had begun.

The process of assigning subject headings to represent the NC Standard Course of Study's provisions for the selected subjects relating to the ninth grade was an iterative process. First, the goals for each of the subjects being used in the Standard Course of Study were examined, and I tried to understand the major themes of these goals. Not every goal lent itself to the application of a subject heading, either because it was highly abstract in nature, or the thrust of the goal had already been covered by the headings assigned to another goal. Additionally, some subjects like science and history presented such a wide range of sub-topics that it would have been impossible to properly address them in a project of this

scope; it was decided to attempt to consider the most sub-topics practically possible in this instance. A list of all the curricular goals taken under consideration for this research can be found in the Appendix, but I have presented the goals which directly informed the inclusion of a subject heading for the study below in Table 2.

Table 2:
Subject Keyword by NC Standard Course of Study Goal:

Subject	Goal	Subject Keyword Heading(s)
Language Arts: English I	<p>Competency Goal 1: The learner will express reflections and reactions to print and non-print text and personal experiences.</p> <p>Competency Goal 3: The learner will examine argumentation and develop informed opinions.</p> <p>Competency Goal 5: The learner will demonstrate understanding of various literary genres, concepts, elements, and terms.</p>	<p>American Literature – 19th Century – History and Criticism</p> <p>American Literature – 20th Century – History and Criticism</p> <p>English Literature – 19th Century – History and Criticism</p> <p>English Literature – 20th Century – History and Criticism</p>
Language Arts: English I	<p>Competency Goal 4: The learner will create and use standards to critique communication.</p> <p>Competency Goal 6: The learner will apply conventions of grammar and language usage.</p>	English Language – Usage
Mathematics: Algebra I	<p>Competency Goal 1: The learner will perform operations with numbers and expressions to solve problems.</p> <p>Competency Goal 2: The learner will describe geometric figures in the coordinate plane algebraically.</p> <p>Competency Goal 3: The learner will collect, organize, and interpret data with matrices and linear models to solve problems.</p> <p>Competency Goal 4: The learner will use relations and functions to solve problems.</p>	<p>Mathematics – Algebra</p> <p>Mathematics Problems, Exercises, etc.</p> <p>Mathematics -- Dictionaries</p>

<p>Modern Foreign Language: Spanish and French (Level 1)</p>	<p>Competency Goal 1: INTERPERSONAL COMMUNICATION - The learner will engage in conversation and exchange information and opinions orally and in writing in the target language.</p> <p>Competency Goal 2: INTERPRETIVE COMMUNICATION - The learner will understand and interpret written and spoken language on a variety of topics in the target language.</p>	<p>Spanish Language</p> <p>French Language</p>
<p>Modern Foreign Language: Spanish and French (Level 1)</p>	<p>Competency Goal 5: COMPARISONS - The learner will develop insight into the nature of language and culture by comparing his/her own language(s) and culture(s) to others.</p> <p>Competency Goal 4: CULTURES - The learner will gain knowledge and demonstrate understanding of the relationship among practices, products, and perspectives, of cultures other than his/her own.</p>	<p>Spanish Literature – History and Criticism</p> <p>French Literature – History and Criticism</p>
<p>Science: Earth & Environmental Sciences</p>	<p>Competency Goal 2: The learner will build an understanding of lithospheric materials, tectonic processes, and the human and environmental impacts of natural and human-induced changes in the lithosphere.</p>	<p>Geology</p>
<p>Science: Earth & Environmental Sciences</p>	<p>Competency Goal 1: The learner will develop abilities necessary to do and understand scientific inquiry in the earth and environmental sciences.</p> <p>Competency Goal 3: The learner will build an understanding of the origin and evolution of the earth system</p>	<p>Ecology</p>
<p>Science: Earth & Environmental Sciences</p>	<p>Competency Goal 4: The learner will build an understanding of the hydrosphere and its interactions and influences on the lithosphere, the atmosphere, and environmental quality.</p>	<p>Oceanography</p>
<p>Social Studies: World History</p>	<p>Competency Goal 2: Emerging Civilizations - The learner will analyze the development of early civilizations in Africa, Asia, Europe, and the Americas.</p>	<p>Civilizations, Ancient</p>
<p>Social Studies: World History</p>	<p>Competency Goal 3: Monarchies and Empires - The learner will investigate significant events, people, and conditions in the growth of monarchical and imperial systems of government.</p> <p>Competency Goal 4: Revolution and Nationalism - The learner will assess the causes and effects of movements seeking change, and will evaluate the</p>	<p>Europe – History</p> <p>Africa – History</p> <p>Asia – History</p>

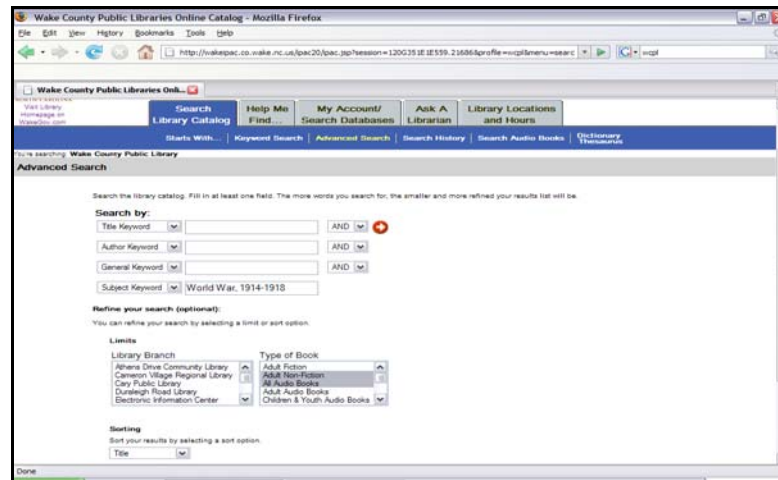
	sources and consequences of nationalism. Competency Goal 6: Patterns of Social Order - The learner will investigate social and economic organization in various societies throughout time in order to understand the shifts in power and status that have occurred.	
Social Studies: World History	Competency Goal 5: Global Wars - The learner will analyze the causes and results of twentieth century conflicts among nations.	World War, 1914-1918 World War, 1939-1945

Source: Public Schools of North Carolina, 2004

The method of the OPAC subject searching proceeded in four steps. The first step was to enter the search term and enable appropriate search limitations in the OPAC Advanced Search page. In general, the searches were limited to reduce the number of juvenile and fiction titles which would have to be weeded out of the results manually. There were slight variations in this step among the systems' OPACs, and the particulars for each are as follows:

- Wake County Public Libraries: The search term was entered into the "Subject Keyword" field. The "Type of Book" field was limited to Adult Non-Fiction, All Audio Books, Non-Fiction New Books, and All Young Adult Books. The "Sorting" field was set to sort results by title (see Figure 2).

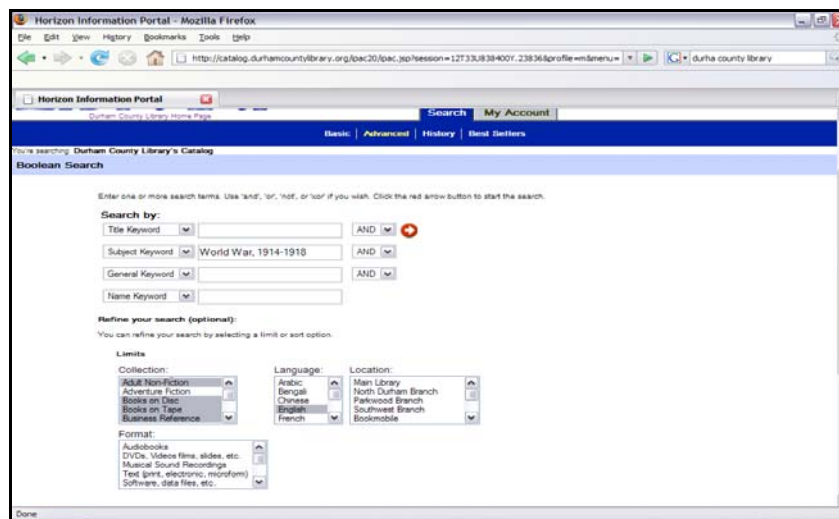
Figure 2:
WCPL Advanced Search Screen



Source: <<http://wakeipac.co.wake.nc.us/>>

- Durham County Library: As shown in Figure 3, the search term was entered into the “Subject Keyword” field. The “Language” field was limited to English. The “Collection” field was limited to Adult Non-Fiction, Books on Disc, Books on Tape, Business Reference, Reference, and Young Adult. The results were sorted by Title, as selected in the “Sort” field.

Figure 3:
DPL Advanced Search Screen



Source: <<http://catalog.durhamcountylibrary.org/#focus>>

- Hyconeechee Regional Library System: This system uses a Polaris Library System OPAC. Searches were entered into the first box, with the “Find” field set to Subject (see Figure 4). The “Libraries” and “Publication Dates” fields were set to All, and “Languages” to English. The search excluded everything except “AudioBook (CD, DVD, or cassette)”, “Book”, and “Book & (CD, DVD, or cassette)” from the “Detailed Materials Types” field. The “Target Audience” field was set to exclude materials aimed at “Juvenile”, “Pre-adolescent”, “Preschool”, and “Primary” audiences.

Figure 4:
HRLS Advanced Search Screen

The screenshot shows the Orange County Public Library's advanced search interface. At the top, the search criteria are set to 'Find: Subject World War, 1914-1918'. Below this, there are options for 'Limit by: All formats' and 'Sort by: Title'. The search is performed using the 'PAC (HYCPROD)' database. The search options are configured as follows:

Libraries	Publication Dates
All	All
Hyconeechee Regional Library System	2008
Orange County Public Library	2007
Caswell County Public Library	2006
Person County Public Library	2005
Person County Outreach	2004
Orange County Book van	<input type="checkbox"/> Exclude

Detailed Material Types	Target Audience
All	General
Audio Book (CD, DVD, or Cassette)	Juvenile
Book & (CD, DVD, or Cassette)	Pre-adolescent
CD Music	Preschool
<input checked="" type="checkbox"/> Exclude	Primary
	<input checked="" type="checkbox"/> Exclude

Source: <<http://catalog.co.orange.nc.us/POLARIS/Search/>>

Once the search was conducted and results returned, the results were recorded through the function provided on each site which generated a list of titles, including some bibliographic information (see Figures 5 and 6). This function was referred to as “My List”, “My Booklist”, and “My Lists” and was located on a toolbar toward the top of the page. The set-up and uses of the list function varied across systems, but each was capable of producing lists of materials with the information necessary to conduct this study. The only exception to this

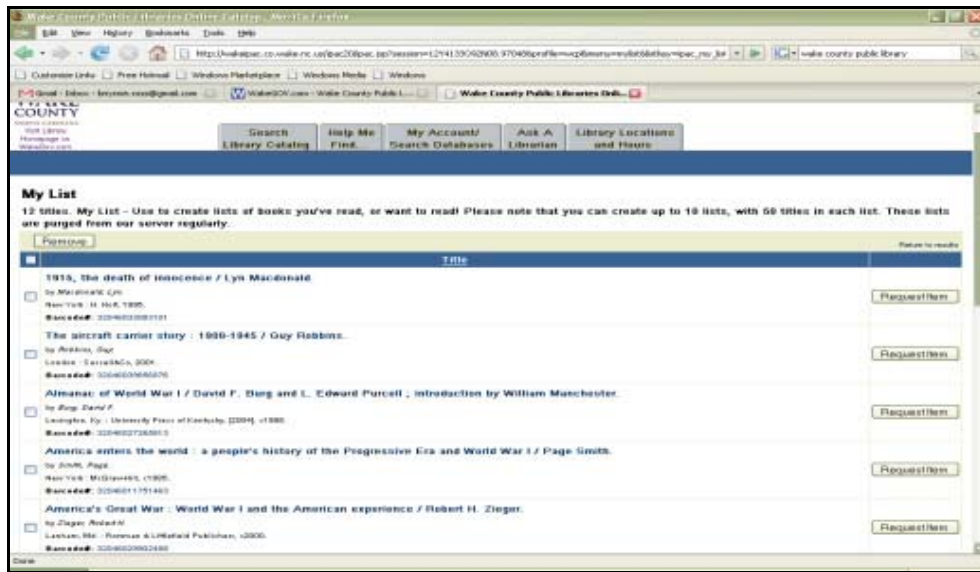
was the Durham County Library’s list function, which did not included publication dates. These dates were added to the lists manually after they were created.

Figure 5:
“My Lists” Function: HRLS



Source: <http://catalog.co.orange.nc.us/POLARIS/search/>

Figure 6:
“My Booklist” Function: WCPL



Source: <http://wakeipac.co.wake.nc.us/>

During the recording process, some titles were rejected for a variety of reasons. This initial weeding phase constituted the second step of the process. Because the OPACs were searched using subject keywords, and not actual subject headings, there were a few results which were only vaguely related to the topic. The vast majority of results were on-topic and usable for the study. There were also occasional titles which were judged to be on an overly simplistic level for ninth graders. Similarly, it was not possible to include Young Adult non-fiction while excluding fiction aimed at this audience; therefore, the fiction titles had to be weeded out of the results manually.

The third procedural step consisted of comparing the completed lists in order to verify that no duplicate titles existed on the subject results lists for a single library system. A number of the titles were found on multiple lists, and were assigned to the list they fit best according to the researcher's judgment. Some of this process was a relatively straightforward process of seeing that the item was primarily about oceanography, for example, but also included elements of ecology. The material would be placed in the list that fit the primary theme of the book – in this instance, oceanography. In other cases, it was a matter of placing books into the narrower rather than the broader subject in which they fit; for instance, books on the Second World War would be placed into “World War, 1939-1945” rather than “Europe—History”. Finally, there were cases in which no compelling argument could be made in the favor of one list over another. This occurred in the English lists, where two large reference series on general literary criticism resulted from both the 20th Century English and American literary criticism searches. The series were equally appropriate for both lists, and in the end one series was given to the English list and the other to the American list in an attempt to be equitable in the face of no better solution.

The issue of deciding what to do with multiple copies of the same edition and multiple editions of the same title also had to be addressed during the weeding phase. After

considerable deliberation on the matter, the choice was made to only count one copy of all editions of a single title. The primary reason that this study ignores multiple copies and multiple editions is that the real focus of this investigation is the broad academic coverage areas supported by public libraries; in this light, the content addressed by a particular title is the same whether there are five copies in the system or fifty. Therefore, the numbers presented in the results of this study are best seen as a representation of the breadth of the collections, rather than a count of the holdings.

All materials that met the study criteria were recorded using data collection instruments like the ones shown below. The verified lists, demonstrated by Figure 7, were counted and analyzed in the fourth and final step of the procedure.

Figure 7:
Sample Data Collection Instrument: Curricular Holdings

WCPL:
English literature --19th century -- History and criticism (16 ITEMS)

British satire and the politics of style, 1789-1832 / Gary Dyer.

by *Dyer, Gary.*

Cambridge ; New York : Cambridge University Press, 1997.

The Brontes : Branwell, Anne, Emily, Charlotte / Bettina L. Knapp.

by *Knapp, Bettina Liebowitz, 1926-*

New York : Continuum, 1991.

The Cambridge companion to Jane Austen / edited by Edward Copeland and Juliet McMaster.

Cambridge ; New York : Cambridge University Press, 1997.

Critiques.

by *Ralli, Augustus, 1875-*

Freeport, N.Y., Books for Libraries Press [1966]

Figure 8:
Sample Data Collection Instrument: Publication Dates

Subject	Audio	Print	MEAN	S.D.	MED.	MODE	MAX	MIN	RNG.	Count
Earth and Environmental Sciences:										
			Print:							
Geology			1980.14	34.51	1996	1998	2007	1856	151	63
	2001	1982								
63 Print	2001	1998	Audio:							
3 Audio	2003	1993	2001.67	1.15	2001	2001	2003	2001	2	3
66 TOTAL		1981	Comb.							
		1917	1981.12	34.27	1996	2001	2007	1856	151	66
		1981								
		1906								
		1997								
		2004								
		2001								

Finally, the data was analyzed. The first layer of analysis for the data collected through these searches was to simply count the number of materials by type (print vs. audiovisual), by subject, and by library system. Next, the lists of publication dates of all the qualifying items were subjected to descriptive statistics to gain intellectual control over the data (see Figure 8). The mean, median, mode, standard deviation, maximum, minimum, and range were calculated for each set of publication dates. The number sets began with each individual subject keyword category, then encompassed the group of categories making up a single subject, and then finally included all qualifying items in a library system's collection. These statistics were compared among the individual library's subject collections, to determine relative subject strengths and weakness, as well as to describe the overall condition of curriculum support in the library. Then, the statistics were compared between library collections, both at the subject and collection-wide level, to determine comparative subject

strengths/weaknesses and to inform any generalizations about the systemic quality of curriculum support in the Triangle region.

Chapter 4: Results

The results of this study are divided into two groups. The first group is a representation of the depth and breadth of curricular materials available to ninth grade students in the Triangle region. This representation, as explained in the methods section, is calculated from the number of unique title hits resulting from a subject keyword search in each system's OPAC. The second group of findings is the results of the publication date data gathered from each of the qualifying titles. The results of the descriptive statistics run on the collected publication dates are presented here by subject and collection.

Wake County Public Libraries:

The content analysis of the WCPL catalogue revealed a sizable collection of curricular materials. This data for this system was particularly strong in the area of history materials, with 1,414 total items resulting from the keyword searches. The subject was dominated by materials concerned with the Second World War ("World War – 1939-1945"); in fact, a full 845 of the total 1,414 titles were from this particular category, which represents very nearly 60% of the materials. Science and English had similar results, with 296 and 266 total items respectively. To a lesser extent than with the history materials, the English subject titles were also had one individual keyword category return a disproportionate number of hits. "American literature – 20th century – History and Criticism" accounted for 104 of the 266 total items in English. Foreign language materials included 116 titles and math represented the lowest concentration of materials with 24 total items. All keyword categories returned at least one result.

Wake County Public Libraries also holds a number of curricular audio resources. In addition to having the most overall titles, the history categories also rated the highest number of audio materials, with 38. Foreign Language represented eight audio resources out of the 116 total items in the subject category. Even the science keywords yielded some audio results; the study found three audio materials for science, all coming from the “Ecology” subject keyword category. There were no audio resources in English or Math. Table 3 details the findings of the content analysis from the WCPL system by overall subject and subject keyword.

Table 3:
WCPL: Detailed Findings

Subject Keyword	Print	Audio	Combined
English Language – Usage	65	0	65
American Literature – 19 th Century —History and Criticism	28	0	28
English Literature – 19 th Century —History and Criticism	16	0	16
American Literature – 20 th Century —History and Criticism	104	0	104
English Literature – 20 th Century —History and Criticism	53	0	53
English Subject Totals:	266	0	266
Civilization, Ancient	62	0	62
Europe – History	167	10	177
Africa – History	135	0	135
Asia – History	16	0	16
World War, 1914-1918	176	9	185
World War, 1939-1945	826	19	845
History Subject Totals:	1376	38	1414
Mathematics – Algebra	1	0	1
Mathematics Problems, Exercises, etc.	15	0	15
Mathematics – Dictionaries	8	0	8
Math Subject Totals:	24	0	24
Ecology	205	0	205
Oceanography	63	3	66
Geology	25	0	25
Science Subject Totals:	293	3	296

Spanish Language	64	5	69
Spanish Literature – History and Criticism	8	0	8
French Language	28	3	31
French Literature – History and Criticism	8	0	8
Foreign Language Totals:	108	8	116

The publication date data collected for WCPL’s qualifying curricular materials suggests that their average curricular resources tends to be from twelve to twenty years old. Average dates of publication among subjects range from 1988 to 1996. Understandably, the audio materials in the various subjects were quite a bit newer than their print counterparts; audiobooks in history and science both averaged a publication date of 2002, while the publication date of audio materials in foreign language averaged to 1999.

The history materials in particular indicate a collection which includes accounts contemporary with important events of the past century as well as those written more currently. As shown in Table 4, materials in the history collection span a publication range of 108 years; the average date of 1988 (rounded to the nearest year) is not heavily influenced by the existence of outliers, either. There are numerous titles in the collection published around the late 1910s and mid to late 1940s, dealing primarily with the world wars respective to those times.

The publication date data for the science subject area, however, is skewed somewhat by the presence of outliers. The Geology subject keyword search resulted in data that included three historical geological surveys conducted in North Carolina and published in 1896, 1956, and 1876. There was no compelling argument to disallow these materials from the results, but their presence must be noted to explain the unusually low average publication date of 1990 in a subject collection of otherwise relatively recent materials.

Table 4:
WCPL: Publication Date Data

	Mean	St. Dev.	Median	Mode	Max.	Min.	Range
English:							
Print	1994.51	10.13	1997.5	2004	2008	1955	54
Audio	NA	NA	NA	NA	NA	NA	NA
Combined	1994.51	10.13	1997.5	2004	2008	1955	54
For. Lang.							
Print	1995.53	10.20	1998.5	2003	2007	1950	57
Audio	1998.75	5.95	2000	2000	2005	1985	20
Combined	1995.75	9.98	1999	2003	2007	1950	57
Science:							
Print	1990.28	19.75	1996	2001	2007	1856	151
Audio	2001.67	1.15	2001	2001	2003	2001	2
Combined	1990.40	19.68	1996	2001	2007	1856	151
Math:							
Print	1994.04	11.74	1998	2002	2007	1965	42
Audio	NA	NA	NA	NA	NA	NA	NA
Combined	1994.04	11.74	1998	2002	2007	1965	42
History:							
Print	1987.98	17.50	1994	2001	2008	1900	108
Audio	2001.82	5.41	2004	2004	2007	1981	26
Combined	1988.35	17.43	194	2001	2008	1900	108

Durham Public Library:

The data collected from the Durham Public Library catalogue suggests another wide-ranging collection of curricular materials. Much like the WCPL collection, the DPL system collection was strongest in the areas of History and Science; the content analysis found subject totals of 1,618 and 369 items respectively in these areas. English was represented with 295 titles, over half of which came from materials from the “American Literature – 20th Century – History and Criticism” category. Foreign language had the next highest result, with a total of 136 titles. These titles were spread fairly evenly between French and Spanish resources; sixty-five titles fell under the “Spanish Language” or “Spanish Literature – History and Criticism” categories, and 51 titles were included in the “French Language” and “French Literature – History and Criticism” categories. Finally, mathematics made a small showing

with a total of 15 items, predominantly from the “Mathematics – Problems, Exercises, etc.” category.

Every individual subject keyword in the Durham County Library OPAC analysis returned at least one result. Number of title hits ranged from the lowest keyword category, “Mathematics – Algebra,” representing only one item to the highest, “World War – 1939-1945” which accounted for 1,086 print materials and 20 audio items.

The audio component of the DCL curricular collection was concentrated in only two of the five subject areas; foreign language included 20 audio resources and history included 27. Science, math, and English all had no audio materials. Table 5 records the detailed findings of the analysis of Durham County Library’s OPAC.

Table 5:
DCL: Detailed Findings

Subject Keyword	Print	Audio	Combined
English Language – Usage	61	0	61
American Literature – 19 th Century —History and Criticism	26	0	26
English Literature – 19 th Century —History and Criticism	18	0	18
American Literature – 20 th Century —History and Criticism	152	0	152
English Literature – 20 th Century —History and Criticism	38	0	38
English Subject Totals:	295	0	295
Civilization, Ancient	24	1	25
Europe – History	185	2	187
Africa – History	101	1	102
Asia – History	25	0	25
World War, 1914-1918	171	3	174
World War, 1939-1945	1086	20	1106
History Subject Totals:	1591	27	1618
Mathematics – Algebra	1	0	1
Mathematics Problems, Exercises, etc.	10	0	10
Mathematics – Dictionaries	4	0	4
Math Subject Totals:	15	0	15

Ecology	280	0	280
Oceanography	22	0	22
Geology	65	0	65
Science Subject Totals:	367	0	367
Spanish Language	62	7	69
Spanish Literature – History and Criticism	3	0	3
French Language	39	13	52
French Literature – History and Criticism	12	0	12
Foreign Language Totals:	116	20	136

Durham County Library’s curricular collection was largely published, on average, in the early- to mid-1990s (see Table 6). The collection includes materials from either the 1910s or 1920s to the present in most subjects. Mathematics materials are the exception in this collection, as they averaged publication in 1998 and date from 1982 at the earliest.

There is relatively little in the way of audio materials in the DCL collection, but what is included is reasonably recent. The foreign language audio materials have an average publication date of 1998, and the history audiobooks average a publication date of 2001. Both of these subject audio sub-collections do have the occasional item dating from the 1980s - 1985 for foreign language and 1988 for history – which is quite old for this type of resource. However, the largest portion of the audio materials is much more current.

Table 6:
DCL: Publication Date Data

	Mean	St. Dev.	Median	Mode	Max.	Min.	Range
English:							
Print	1990.84	14.77	1996	2000	2007	1928	79
Audio	NA	NA	NA	NA	NA	NA	NA
Combined	1990.84	14.77	1996	2000	2007	1928	79
For. Lang.							
Print	1992.22	15.26	1997	1997	2007	1916	91
Audio	1997.80	6.33	1999.5	1992	2005	1985	20
Combined	1993.04	14.42	1997	1998	2007	1916	91
Science:							
Print	1994.91	9.12	1996	1996	2007	1921	86

Audio	NA	NA	NA	NA	NA	NA	NA
Combined	1994.91	9.12	1996	1996	2007	1921	86
Math:							
Print	1998.40	6.79	2000	2000	2007	1982	25
Audio	NA	NA	NA	NA	NA	NA	NA
Combined	1998.40	6.70	2000	2000	2007	1982	25
History:							
Print	1990.05	16.31	1996	1999	2008	1916	92
Audio	2001.30	4.15	2001	2001	2007	1988	19
Combined	1990.24	16.25	1996	1999	2008	1916	92

Hyconeechee Regional Library System:

While the title numbers for the Hyconeechee Regional Library System are noticeably lower than those of the two other library systems under consideration here, there are many similarities in proportion (see Table 7). Here again, History and Science are numerically strongest; the history categories returned 610 titles and science materials account for 175 titles. English returned 126 items, foreign language represented 97 titles, and mathematics included six items.

This is the only system which did not get at least one result for every subject keyword search performed. It was the category of “Mathematics – Algebra” that yielded zero hits. In the foreign language part of the curricular collection, “French Literature – History and Criticism” and “Spanish Literature -- History and Criticism” were also quite close with only two matching titles each.

Overall, there was very few qualifying audio resources found in the analysis of the Hyconeechee Regional Library System’s OPAC. The subject of foreign language was, however, well-represented with 16 audio materials out of 97 total items. This is a competitive number of audio resources, with respect to the Durham and Wake county systems, but is even more note-worthy given the proportion of the foreign language collection these materials represent in the Hyconeechee Regional Library System.

Table 7:
HRLS: Detailed Findings

Subject Keyword	Print	Audio	Combined
English Language – Usage	27	0	27
American Literature – 19 th Century —History and Criticism	14	0	14
English Literature – 19 th Century —History and Criticism	8	0	8
American Literature – 20 th Century —History and Criticism	55	0	55
English Literature – 20 th Century —History and Criticism	22	0	22
English Subject Totals:	126	0	126
Civilization, Ancient	15	0	15
Europe – History	88	1	89
Africa – History	40	0	40
Asia – History	6	0	6
World War, 1914-1918	68	0	68
World War, 1939-1945	385	7	392
History Subject Totals:	602	8	610
Mathematics – Algebra	0	0	0
Mathematics Problems, Exercises, etc.	4	0	4
Mathematics – Dictionaries	2	0	2
Math Subject Totals:	6	0	6
Ecology	123	0	123
Oceanography	20	0	20
Geology	31	1	32
Science Subject Totals:	174	1	175
Spanish Language	44	10	54
Spanish Literature – History and Criticism	2	0	2
French Language	33	6	39
French Literature – History and Criticism	2	0	2
Foreign Language Totals:	81	16	97

The findings relating to the age of the Hyconeechee Regional Library’s curricular collection is in line with the other systems – their books tend to average publication in the early 1990s (see Table 8). History is an exception to this trend, with its somewhat lower average of 1988. With the exclusion of mathematics and history, much of the collection is more modern than the other systems’ collections. In fact, the oldest materials in science are

entire decades newer than their counterparts at DCL and WCPL. In the HRLS, the oldest material in science is from 1961, while the oldest science item from the DCL system is from 1921 and the oldest WCPL science title dates from 1856 - a difference of 40 and 105 years respectively. HRLS also has the “newest oldest book” in English, foreign language, and history, but to a much narrower degree than in the case of science.

Counter to the relative currency of their print and overall curricular collection, the audio portion of the collection is surprisingly old. The publication date average of 1992 for foreign language is very old for audio materials, and years older than any other subject audio collection in the other systems studied here. The average age of 2001 for the single science audio title is more typical for this type of resource.

Table 8:
HRLS: Publication Date Data

	Mean	St. Dev.	Median	Mode	Max.	Min.	Range
English:							
Print	1991.22	12.05	1993	2000	2007	1936	71
Audio	NA	NA	NA	NA	NA	NA	NA
Combined	1991.22	12.05	1993	2000	2007	1936	71
For. Lang.							
Print	1991.43	11.67	1994	1997	2006	1957	49
Audio	1992.88	11.75	1998	1984	2003	1959	44
Combined	1991.67	11.64	1994	1997	2006	1957	49
Science:							
Print	1990.18	12.65	1992	2003	2007	1961	46
Audio	2001.00	NA	NA	NA	2001	2001	0
Combined	1990.25	12.64	1992	2003	2007	1961	46
Math:							
Print	1992.83	16.83	2001	2003	2007	1964	43
Audio	NA	NA	NA	NA	NA	NA	NA
Combined	1992.83	16.83	2001	2003	2007	1964	43
History:							
Print	1987.98	17.58	1994	2005	2008	1919	89
Audio	2000.88	3.44	2000	1999	2006	1997	9
Combined	1988.15	17.53	1994	2001	2008	1919	89

A cross-system comparison of the holdings reveals the largest number of qualifying curricular resources in the Durham County Library system. Wake County Public Libraries

are a very close second, with 2124 items to DCL's 2429 items. The analysis of the Hyconeechee Library System found evidence for about half as many curricular materials in the HRLS than were found in the Durham or Wake county systems. As Table 9 illustrates, there was a strong trend among the subject strengths of the studied library systems. Each library carried the most curricular materials in history, the next largest amount in science, then English, foreign language, and mathematics respectively.

Table 9:
Subject and Collection Totals by Library System

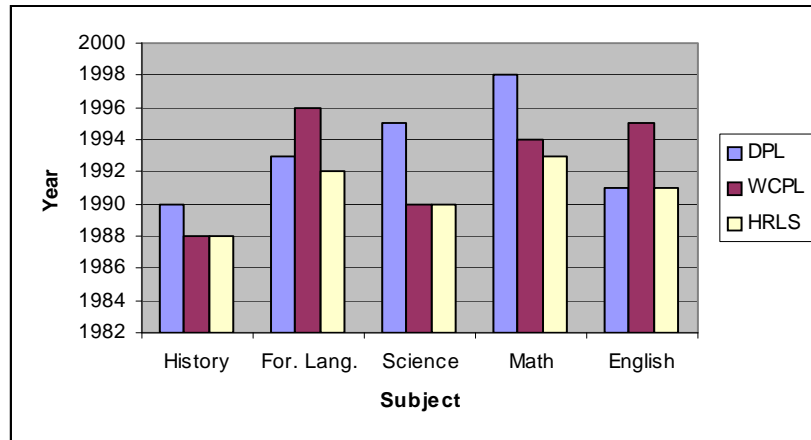
Library System	History	Foreign Lang.	Math	Science	English	Total:
WCPL	1414	116	24	296	266	2124
DCL	1618	136	15	369	295	2433
HRLS	610	97	6	175	126	1020

Figure 9 shows a comparison of the three systems' average publication dates in each subject. There were very few clear trends that stand out in this comparison, which could be used to inform generalities about the way Triangle-area library systems collect in and maintain their curricular materials. One feature all the systems examined had in common was that history was uniformly the oldest subject. In DCL and HRLS, mathematics averaged the newest titles among the subjects; in the WCPL collection, math was only the third newest subject collection after foreign language and English.

Durham County Library had the highest average publication date in over half of the subject collections. The DCL history collection averages two years newer than the HRLS and WCPL system (1990 for the Durham system and 1988 for both the Wake and Hyconeechee systems), and an entire five years newer than the others in science (1995 for DCL and 1990 for both DCL and HRLS). Additionally, in Math, Durham's collection

average a publication date of 1998 which is four years newer than WCPL (1994) and five years more recent than the HRLS (1993).

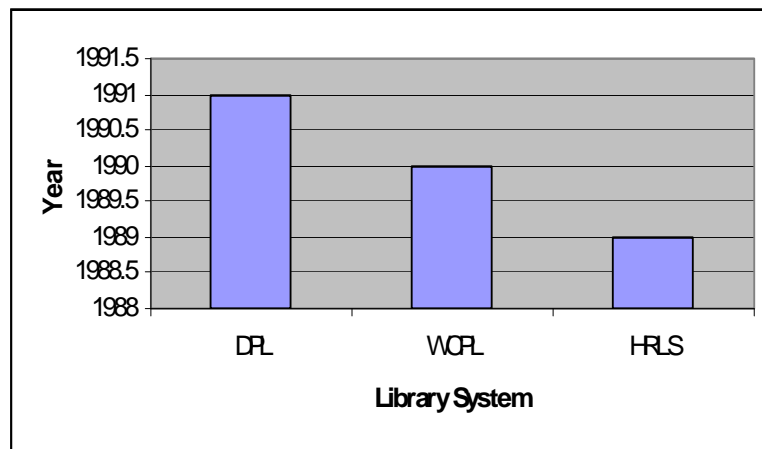
Figure 9:
Average Publication Date by Subject, All Systems



Note: Publication Dates rounded to the nearest year

Finally, Figure 10 shows the overall average date of publication for each systems' curricular collection. Durham County Library has the newest collection, with an average of 1991. Wake County Public Libraries and the Hyconeechee Regional Library System are very close behind with publication date averages of 1990 and 1989, respectively.

Figure 10:
Average Publication Date of Total Curricular Collections



Note: Publication Dates rounded to the nearest year

Chapter Five: Discussion

This study does not attempt to interpret the data to form a judgment of a “good”, “fair”, “poor”, or “bad” level of curriculum support in any of the library systems studied here. Rather, this discussion is intended to highlight certain trends which emerged from the data and interpret them in a relative, comparative light. Additionally, this portion of the paper will attempt to demonstrate some of the complexities of the data which must be observed to ensure a fair and well-balanced interpretation of its meaning.

Curricular Holdings Data:

In this study, curricular holdings data represent the primary measure for determining the comparative level of curriculum support in each system. It is possible to analyze this data through two different lenses. First, the data may be compared absolutely. There are some marked differences among the library systems in population served and number of branches, but it is fair to compare the three library systems without respect to their varying situations. The number of different titles and date of publication is a legitimate way to measure variety and usefulness of a curricular collection. Even if a library serves a smaller population, it is reasonable to expect that the students will still have a comparable need for information with students in a larger area. In this method of analysis, Durham County Library appears the strongest in overall strength of the curricular collection, followed closely by Wake County Public Libraries and more distantly by the Hyconeechee Regional Library System.

It is also possible to look at the data relative to the populations served. While

absolute comparison reveals the comparative depth and breadth of the collections, a relative analysis sheds more light on the per capita effectiveness of the collections. This type of analysis, as demonstrated by Table 10, puts a markedly different light on the meaning of the data. The WCPL system, while having a relatively large collection, would have to have almost twice as many different curricular materials as they currently do to achieve the HRLS' per capita level of support. Durham County Library still achieves the highest marks, either way the data is examined.

Table 10:
Number of Curricular Titles per capita Served

Library System	Titles	Population	Per Capita Titles
WCPL	2124	627,846	1: 295
DCL	2429	223,314	1: 91
HRLS	1020	153,850	1:150

The data from all of the studied library systems suggests that some curricular subjects are uniformly much better represented than others in terms of sheer number of different titles. For instance, history is the best represented subject in all of the collections, often by a large margin. One of the most logical reasons this may be is that history is a popular subject in addition to being an academic subject. Since most of these library systems have a popular materials focus, it is understandable that broad-appeal academic subjects would receive the most collecting attention. There are at least two ways of looking at this: first, selectors understand the dual function of history titles and collect heavily in this area to, if you will, kill two birds with one stone. The other perspective is that selectors are either primarily or

almost entirely thinking about the pleasure-reading audience, and students' needs are met in this case simply by coincidence.

This latter line of reasoning, however, does not really support why scientific materials should be the second most represented type of curricular material. Environmental and Earth science may be light reading for some people, but it not typically considered to be so. If pleasure pursuits were the only thing on selectors minds, we might expect foreign language learning materials and even perhaps works of popular literary criticism to feature much more heavily than science. The only thing this theory would explain very well is why mathematics receives practically no notice in any of the library systems studied. While it is conceivable that popular works on the environment could be construed as pleasure-reading, it is almost impossible to accept that most library-goers would consider picking up an algebra text for their trip to the beach.

There is further evidence that student needs influence collecting practices from the library systems' own statements of purpose or mission. According to these statements, providing curriculum support for student patrons is an acknowledged function of the library. For instance, the Statement of Purpose in the Wake County Public Libraries business plan for 2007-2008 includes:

“Priority #1: Provide Services to Children: This includes...reference service to support school curriculum, readers' advisory to make reading a lifelong habit, maintaining book and audio book collections for children...and collaboration with public, private, charter and home schools.” (Wake County Community Services Department)

The Hyconeechee Regional Library System's mission statement could not be found online, and further inquiries were not returned. Durham County Library's current strategic plan was available however, and includes a somewhat vaguer mission to assist school-aged users which does not really define how the support is to be provided, which reads:

Goal 2: The library supports family literacy by preparing children to succeed in school and by helping teens develop the skills they need to become productive and well-informed citizens. (Durham County Library)

The conclusion which can be reached from this is that the curricular collections in these libraries are not the result of chance, but rather of some form of intent.

Data on Publication Date:

The average date of publication of a system's curricular collection implies a great deal about the usefulness and overall value of that collection. Currency is of extremely high importance in subjects like science where current knowledge often directly contradicts or supersedes knowledge of previous years. In more advanced fields this range can sometimes be counted in months, but at the high school level the necessity for currency is somewhat less rigid. Even in less technological fields, like history and foreign language, currency is still reflected in modern interpretations of long-standing debates and up-to-date techniques of research and application. While there is certainly an argument for the value of many older materials, the currency of materials is an important consideration when examining a collection.

It is interesting to see that the Hyconeechee Regional Library System simultaneously has the oldest average curricular collection and the newest "oldest book" in many subjects, in comparison with the other systems studied. What this implies is that the books in the HRLS are actually even older than their counterparts in the DCL and especially WCPL systems than the data suggests at first glance; the HRLS subject collections are not as skewed by outliers from the late 19th or normal data from the early 20th century. This is perhaps indicative of the smaller size and resources of the Hyconeechee Regional Library System. A smaller system may need to weed often to accommodate limited shelf space, as well as purchase books with less frequency due to budget constraints.

There are some mitigating factors that could influence the publication date data; in other words, negligence and/or a lack of resources are not the only explanations for the presence of older materials in the collections. First, there are some rational patterns to some of the older materials in the collections. In the WCPL history materials, the average publication date is only 1987 due to the large number of older books balancing out the newer ones. Many of these books were published very soon after the historical event they record occurred (i.e., a lot of books on WWI from the 20s and 30s and a lot of WWII books from the late 1940s and 50s). While perhaps libraries would not choose to collect many of these materials retrospectively, it is understandable why they have been maintained so long. Similarly, the Wake County Public Libraries system has a number of historical local materials in science which are presumably rather rare and are of importance to the community they serve; these materials cannot be judged as simply being “old” in the way that an outdated textbook might be.

Although there are circumstances where older materials can be looked at less harshly, the rule for this study is that greater age is equal to a lower level of support. Math and science materials are arguably the quickest to become obsolete, so they were scrutinized even more closely in terms of age. The results for math materials were promising; in both the Durham County Library and Hyconeechee Regional Library System, the math subject collection was the newest on average of all the subjects examined. Though the actual dates varied, it was positive to see that the library systems updated math materials with a high degree of regularity, at least in comparison with the rest of their collections.

The age of audio materials in these libraries also speaks to the type of experience students would have using them. Obviously, the older the audio collection, the more cassettes and potentially worn materials are likely. Wear-and-tear is a largely aesthetic matter in print materials, but it is a potentially serious issue in audio collections which effects

the usability of the material. Similarly, as cassette-players become less common commodities in students' homes, equipment obsolescence will play a real part in the usability of older collections.

Conclusions:

The first research question posed for in this paper asked about the relationship between the requirements of the NC Standard Course of Study for ninth-graders and the non-fiction resources collected by studied library systems. As this paper has already discussed, the analysis of the data does not suggest that any deliberate effort was made to match materials to specific curricular needs of NC students. The inconsistent results rather suggest either a vague approach where school-related materials are deliberately ordered but without a clear plan, or simple happenstance.

Despite this lack of deliberateness in the curricular collection, all of the library systems studies do address most of the basic objectives of the NC Standard Course of Study addressed in this paper to some degree, regardless of how it came about. One of the more striking themes which emerged from the data was the lack of balance among curricular subjects; there was little evidence of an attempt to give even consideration to curricular materials, and the majority of the materials which qualified for inclusion in the data sets could also be considered popular materials.

The second research question addressed the relative strengths and weaknesses of the individual library systems' subject collections, as well as the strengths and weaknesses which could be seen across systems. These cross-system trends may indicate a wider collecting practice which can be generalized to predict collection strengths and weaknesses in other public libraries in the Triangle Region.

Table 11 illustrates these subject highs and lows comparatively, by showing the percentage of the three curricular collections devoted to each subject. Interestingly, the table also demonstrates the high degree of similarity in the subject collecting focuses in all three library systems. In fact, the greatest percent range of difference between the systems in any subject is only 6.8%., which occurs in History.

Table 11:
Percent Subject Comparisons by Library System

	History	Foreign Lang.	Math	Science	English
WCPL	66.6%	5.5%	1.1%	13.9%	12.5%
DCL	66.5%	5.6%	0.6%	15.2%	12.1%
HRLS	59.8%	9.5%	0.6%	17.2%	12.4%

The most glaring collecting weakness in each system's curricular materials occurred in the math subject collections. In the Wake County Public Libraries system, math materials accounted for only 1.1% of total qualifying curricular materials. The level of math support in the Durham and Hyconeechee Regional systems was even lower, with math titles accounting for only 0.6% of the curricular collection. As a subject, foreign language materials are somewhat underrepresented in the collections, even though the subject is rich in audio materials. As to weaknesses in the individual library systems, there are no real, blatant areas of subject weakness other than the ones that are suffered by all the systems.

In contrast to this general weakness, the systems demonstrated an excellent presence in the subject of history. The materials for history made up, by far, the largest subject collection in each of the libraries studied.

In the individual library systems, many of the subject strengths are most pronounced within the audio portion of the collection. In the Wake County Public Libraries system, the history and science audio materials are particularly strong; history audio accounts for 77.6%

of the system's entire curricular audio collection. Similarly, the Hyconeechee Regional Library System's foreign language audio collection stands out even among the other solid collections of that kind; its foreign language audio materials make up a full 16.5% of the subject collection, which is the highest percentage of audio materials in any subject in any of the libraries. These materials also account for 64% of the HRLS' total curricular audio collection.

While Durham County Libraries system has very respectable audio collections in history and foreign language, the DCL system's primary subject strength is in its print materials. The DCL curricular collection is very strong in science, with a collection that boasts over 70 more titles than the next largest science collection in the library systems examined in this paper. In proportion to the size of its total collection, the Hyconeechee Regional Library System also makes a very good showing in Science.

The third and final research question looked at the relative strengths and weaknesses within subjects in both the individual systems and across systems. There were many general trends which emerged from the data, implying that a "typical" Triangle-area public library may have similar problem- and success-areas as the systems discussed in this paper.

As a whole, the libraries showed at least one particular topic strength in most subject areas. In history, World War II materials enjoyed extensive coverage across all systems – the largest coverage of any topic in any subject, in fact. In comparison with the other regional history topics, European history was the most widely collected. All of the English collections were strong in history and criticism of 20th century American works. Ecology, perhaps because of its more general nature, was the best represented science topic in all of the systems. Math was the only subject to demonstrate no real topic strength, for the simple reason that math materials were so poorly represented that even comparatively well-represented topic were barely noticeable.

Foreign language presents an interesting case. While Spanish language-learning materials were uniformly better represented than their French counterparts, both were generally strong topic collections. The slight bias toward Spanish materials may be influenced by the large number of Spanish-speaking people in the Triangle region; this presents a practical need for non-speakers to have access to Spanish language-learning materials in order to communicate with people with whom they may need to interact. French, on the other hand, is more of a leisure or enrichment pursuit in this part of the country.

Two subjects showed systemic topical weaknesses as well. In the history subject collections, materials on Asian and ancient history were poorly represented across all systems. There were also a consistently low number of foreign language history and criticism titles.

In addition to these general highs and lows, each library system showed individual topic strengths and weaknesses. Durham County Libraries was quite a bit stronger in African history than the other systems and a particularly fine collection of Ecology materials. However, relative to the size of the rest of the science collection, oceanography is somewhat under-represented. In fact, the number of titles in the topic is similar to that of the HRLS oceanography collection, though that system's science collection is less than half the size of Durham County Libraries' science collection.

Wake County Public Libraries displayed the most topically balanced collection of the three systems examined in this paper. Besides the overall topical weaknesses which effected all of the systems, there are no other weakness of this kind which stand out in their curricular collection. The WCPL system does not have the greatest number of titles in each topic, but the collection demonstrates fewer of the extreme highs and lows of the other two systems.

This does, however, lead to the systems having fewer noticeable areas of topical strength, which the exception of a particularly strong collection of African history materials.

The Hyconeechee Regional Library System too is fairly balanced; however were as the WCPL system was balanced at a reasonably high level of support, the HRLS is balanced at a much lower level of support. Proportionate to the size of the curricular collection, the HRLS is strong in both Spanish and French language titles; the French language titles surpass the number of titles in the WCPL collection and nearly match that of the Durham County Library system. This is countered by a noticeable weakness in 19th century English and American literary history and criticism.

Limitations:

As with most research conducted through content analysis, the issue of data reliability must be addressed here as well. While the data was gathered through a definite, repeatable process, it was necessarily organized and interpreted with a greater degree of flexibility. The way in which the data was sometimes subjectively parsed into subject lists here may not be the way another researcher using the same process might have accomplished the task. It is reasonable to expect then that this study could not be repeated to produce identical results. However, on a broader scale, the study and the data results are quite reliable; while every subject keyword list would likely not be identical, if this study was attempted again immediately, the broader subject areas would probably be very similar to the ones represented here. The counter measure these possible concerns about reliability is, of course, the matter of validity. The hand-sorting process used in this study produced highly valid results, even if though results would be more difficult to precisely achieve again than if another method had been used.

Another limitation of this study deals with the issue of exhaustiveness. The study does not include an exploration of many areas of the standard curriculum, such as computer/information literacy and performance arts. The rationale for not including these subjects is mainly based in the idea that they are less book-dependent than some of the traditional subjects examined in this study. Even among the subjects included here, such as English, a true picture of curriculum support is not necessarily gained by focusing on only non-fiction materials. One could certainly argue that works of fiction and their film adaptations serve students as much or more than grammar and language handbooks. Again, it was necessary to limit the scope of the study to one smaller part of the collection in order to meet the demands of a limited timeframe. The subject headings themselves were selected to be as exhaustive as possible, but it would be impossible for the lists to approach being truly exhaustive unless the entire LC subject heading guide was included; the choices were made to include broad subject headings that would encompass the most appropriate works in a more limited number of searches.

The matter of exclusivity can also be raised as a potential limitation of this work. As is the nature of many reference books, it is difficult to assign only one subject or one heading to describe their contents. In order to avoid the situation as much as possible, encyclopedias, dictionaries, and other very broad reference tools were not included in this study, but it is quite possible the problem may occur and qualitative discretion will have to be employed to determine the best placement or placements for the material.

Finally, it must be noted that electronic resources are a widely used and important part of a library's collection, but have not had a part here. These resources have not been included in this study for primarily practical reasons pertaining to time constraints, but also due to the difficulty of itemizing these resources in the manner other materials in this study will be enumerated for analysis. Electronic materials are so distinct from their more

traditional counterparts, it is perhaps more advisable that they be examined in a separate study.

Importance and Impact:

It is vital that public libraries maintain usable, useful, and needed collections of materials. A study such as this can aid information professionals in the Triangle area in gauging the status of curriculum support in their libraries. School librarians in the region can also use the results presented in this paper to better understand what is offered in public libraries, and help their students to access these resources more effectively.

This research is also important to Triangle-region students and their educators. Whether they learn in the context of public, private, charter, parochial, or home-school environments, student actively seek academic information from public libraries; it is therefore useful for them to understand what they might be able to find there. Likewise, the teachers and parents who are responsible for assigning research projects to these students would benefit from a better understanding of the types of resources which are likely to be available in the public library.

Recommendations for Practice:

There are three related recommendations for practice for North Carolina Triangle-area public libraries which arise from this study. First, a greater emphasis should be placed on deliberate collection development for curriculum-supporting materials. Libraries should look at the topics being studied in schools and make at least a portion of their academic materials choices based on that evidence. This would perhaps best be accomplished with the help of both a survey of current nonfiction holdings as they relate to the curriculum and a topical guide to curricular subjects for selectors to use as a tool. Because an effort of this

kind would require quite a bit of work, it would be excellent to see the North Carolina State Library play a part in working with the State Board of Education and Department of Public Instruction to develop these curriculum guides for public libraries to use if they wished.

It is hoped that deliberate collecting practices would lead to more balanced collections, which is the second area of concern. All of the library systems examined in this paper showed problems with having some subject extremely well-represented and others which were barely covered at all. A recommendation to address this is to institute some form of quota system based on the curricular selection guide discussed above. This quota need not be a hard-and-fast measure, but more of a guide or reminder to selectors to give attention to less-covered areas like math so that nothing is allowed to slip by unnoticed. It would be possible to assign a dollar amount or percentage of the collection budget to be used to address each line-item on the curricular selection guide – again the budget assignments would not necessarily need to be equal for all topics, but the fact that some money is allotted to each area of the curriculum may help address the worst of the imbalance problems. Another approach to the quota could be assigning a certain number of titles to be purchased per annum for every topic, rather than doing it in terms of money.

Both of these recommendations lend themselves to the third, which is that public libraries in the Triangle region should place an overall greater emphasis on supporting students, and not on supporting the needs of popular adult interests and young children. Collection development is obviously only a part of this effort. If all Triangle libraries fulfilled Wake County Public Libraries' goals of providing students with reference, collections, and collaboration with school to their fullest extent, the picture of curriculum support in public libraries would be very different.

Suggested Further Research:

There are significant gaps in the literature and current research on this subject which could not be addressed in this paper. First, this is a localized study with results that can only be generalized for that local region. It would be useful if a much larger-scale study on curriculum support in public libraries was conducted which produced results which could be generalized on a national scale. While smaller studies like this one could help lead to the implementation of new collection standards in individual institutions, it would take a much broader research project to influence new standards of best practice in collection development in public libraries. Similarly, it will be necessary to broaden the scope of this study to include materials which support the entire range of students from elementary to high school, as well as examine a broader range of academic subjects.

The other area of research which ought to be addressed in the future deals with the area of technological contributions to curriculum support in public libraries. This study did not address the role of databases, e-books, software, or the free web. All of these technology-based tools are commonly available in public libraries and undoubtedly contribute to helping students access academic information. Future studies could examine the extent to which these tools close gaps this study found in curricular collections as well as demonstrate areas where technology-based materials could be improved to better meet the needs of students.

Summary:

The data collected for this study suggests that North Carolina's Triangle region public libraries are making a solid contribution toward supporting the curricular information needs of high school students. There are whole subjects, like math, which need significant collecting attention and specific topics like Asian history which would benefit from more

coverage. However, these library systems also have some subject and topic collections which excel and provide a high level of curriculum support to local students.

The most fundamental problem is not a lack of will to serve the student population or even any laxity in collection development. Rather, Triangle region public libraries would gain from a more methodical approach to collection development which is rooted in an evidence-based response to the curriculum. This would help translate the good intentions and sometimes successful outcomes of the approach currently suggested by the data into more balanced collections which were in line with the real curricular needs of students.

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Appendix:
Abridged North Carolina Standard Course of Study for Selected Subjects
(Source: Public Schools of North Carolina)

Language Arts: English I

Goal 1: The learner will express reflections and reactions to print and non-print text and personal experiences.

Goal 2: The learner will explain meaning, describe processes, and answer research questions to inform an audience.

Goal 3: The learner will examine argumentation and develop informed opinions.

Goal 4: The learner will create and use standards to critique communication.

Goal 5: The learner will demonstrate understanding of various literary genres, concepts, elements, and terms.

Goal 6: The learner will apply conventions of grammar and language usage.

Mathematics: Algebra I:

Goal 1: The learner will perform operations with numbers and expressions to solve problems.

Goal 2: The learner will describe geometric figures in the coordinate plane algebraically.

Goal 3: The learner will collect, organize, and interpret data with matrices and linear models to solve problems.

Goal 4: The learner will use relations and functions to solve problems.

Modern Foreign Language: Spanish and French (Level 1)

Goal 1: INTERPERSONAL COMMUNICATION - The learner will engage in conversation and exchange information and opinions orally and in writing in the target language.

Goal 2: INTERPRETIVE COMMUNICATION - The learner will understand and interpret written and spoken language on a variety of topics in the target language.

Goal 3: PRESENTATIONAL COMMUNICATION -The learner will present information concepts, and ideas to an audience of listeners or readers on a variety of topics in the target language.

Goal 4: CULTURES - The learner will gain knowledge and demonstrate understanding of the relationship among practices, products, and perspectives, of cultures other than his/her own.

Goal 5: COMPARISONS - The learner will develop insight into the nature of language and culture by comparing his/her own language(s) and culture(s) to others.

Goal 6: CONNECTIONS - The learner will acquire, reinforce, and further his/her knowledge of other disciplines through the foreign language.

Goal 7: COMMUNITIES - The learner will use language and/or demonstrate cultural knowledge and understanding within and beyond the school setting for personal, educational, and professional growth and enrichment.

Science: Earth and Environmental Sciences

Goal 1: The learner will develop abilities necessary to do and understand scientific inquiry in the earth and environmental sciences.

Goal 2: The learner will build an understanding of lithospheric materials, tectonic processes, and the human and environmental impacts of natural and human-induced changes in the lithosphere.

Goal 3: The learner will build an understanding of the origin and evolution of the earth system

Goal 4: The learner will build an understanding of the hydrosphere and its interactions and influences on the lithosphere, the atmosphere, and environmental quality.

Goal 5: The learner will build an understanding of the dynamics and composition of the atmosphere and its local and global processes influencing climate and air quality.

Goal 6: The learner will acquire an understanding of the earth in the solar system and its position in the universe.

Social Studies: World History

Goal 1: Historical Tools and Practices - The learner will identify, evaluate, and use the methods and tools valued by historians, compare the views of historians, and trace the themes of history.

Goal 2: Emerging Civilizations - The learner will analyze the development of early civilizations in Africa, Asia, Europe, and the Americas.

Goal 3: Monarchies and Empires - The learner will investigate significant events, people, and conditions in the growth of monarchical and imperial systems of government.

Goal 4: Revolution and Nationalism - The learner will assess the causes and effects of movements seeking change, and will evaluate the sources and consequences of nationalism.

Goal 5: Global Wars - The learner will analyze the causes and results of twentieth century conflicts among nations.

Goal 6: Patterns of Social Order - The learner will investigate social and economic organization in various societies throughout time in order to understand the shifts in power and status that have occurred.

Goal 7: Technology and Changing Global Connections - The learner will consider the short- and long-term consequences of the development of new technology.

Goal 8: Patterns of History - The learner will assess the influence of ideals, values, beliefs, and traditions on current global events and issues.