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# Sixth-Grade Map and Globe Skills Curriculum

Karen Ann Miles-English  
*University of North Florida*

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SIXTH-GRADE MAP AND GLOBE  
SKILLS CURRICULUM

by

Karen Anne Miles-English

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of Curriculum and Instruction in  
partial fulfillment of the  
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**Signature Deleted**

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Dr. Lynne S. Schwab, Advisor

**Signature Deleted**

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Dr. Elinor A. Scheirer, Committee

**Signature Deleted**

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Dr. Mary Sue Terrell, Committee

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## ABSTRACT

There has been much concern recently about the lack of basic map and globe skills among America's youth. Map and globe skills are a basic tool of social studies used throughout the rest of students' academic, professional and personal lives. These skills incorporate the development of problem-solving and critical-thinking skills. The focus of this project was to develop a map and globe skills curriculum for teaching these skills to sixth-graders in Putnam County, Florida, when they first encounter daily social studies classes. Although curricula have been developed, they do not include all of the objectives necessary to teach sixth-grade Putnam County students who possess different levels of competence. The curriculum incorporates suggestions from the review of related literature. While the curriculum accomodates the average student, it can be adapted to the learning abilities of all students. Because sixth-graders are generally in Piaget's concrete-operational stage of cognitive

development and learn best using "hands-on" activities, the suggested lesson plans stress these types of learning experiences.

## CHAPTER ONE

### INTRODUCTION

In the spring of 1986, 8,000 seventeen year olds were tested by the National Assessment of Educational Progress for the National Endowment for the Humanities, to see what seventeen-year-olds really know. This and other recent studies have indicated that many graduating high school seniors can not answer such questions as what country is immediately north or south of the United States or what oceans border the eastern and western United States coastlines. Immigrants who wish to become United States citizens must possess many of these facts; furthermore, most citizens believe that these basic mapping skills and concepts should also be known and understood by the youth of America. There is also the argument that this basic social studies knowledge must be acquired so that additional knowledge can be learned.

Maps are a basic tool of social studies. Yet, with recent developments of aerial and space photographs as well as the increased use of computers, some people believe that teachers may be neglecting to teach or to reinforce the skills needed to read maps. In order to be able to use maps and map-like photographs, students must still have learned and understood basic mapping skills and concepts.

Educators argue that using maps to teach social studies leads to a better understanding of the world. Maps can be used to locate areas of current and historical events. Economic, political and sociological relationships among countries or world regions can be better understood through the use of maps. Maps can also enhance the concepts of other disciplines. The abstract science concept of earth in space or the "Greenhouse Effect" can be taught through the use of maps. Environmental studies, energy production, water use and pollution studies can be enhanced when supplemented with maps. Comparing property values and selecting sites to locate shopping centers and schools are examples of how

maps can be used in the study of economics. Maps are necessary for urban growth and crime-rate studies if the results are to be more accurate and comprehensive. Ancestry and the spread of culture can also be studied through maps. Although map skills may be learned in social studies, these skills can be used to teach or to supplement a variety of subjects.

Maps can be used to develop other skills such as problem-solving and critical-thinking skills, which can be transferred to real life situations. Students can use various types of specialized maps to collect data. These data can then be used to help solve problems such as where to build a road. Maps can also be used to make inferences. For example, using population and topographic maps, students can infer why an area is or is not densely populated. Comparisons can be made and then the information from maps can be analyzed and developed into categories. Students can form and test hypotheses using maps, and data can then be evaluated. All of these skills are important in the real world and can be taught and developed by the use of maps.



Citizens need a basic knowledge of their country. Maps can be used to increase their understanding of their own nation as well as the relationships among other nations. Such information would allow citizens to make more informed, intelligent decisions concerning local or national issues.

Because technology seems to be contracting the world, citizens also need knowledge about the earth as a global system. More and more people have frequent contact on a national and international basis. Businesses are developing international markets, an effort which requires an understanding based in part upon map concepts. Another justification for learning map skills is that it is important that people develop an understanding of the same issues from different perspectives. Maps can be used to help explain how geography has affected a people's economy or political structure, as well as other aspects of their culture. What happens politically in a country may have repercussions that can affect the entire world population.

Maps are not only a basic tool of social studies, but they are also a tool that can be used at work, in traveling and in decision-making. In order to be able to use or read maps, basic mapping skills must first be learned. These skills are then used to develop concepts which can then be used to develop problem-solving and critical-thinking skills.

An elementary curriculum needs to be developed that will teach basic map and globe skills which can be used in context with map concepts and generalizations. Yet, the basic skills can only be learned if a person is developmentally ready and able to learn these skills. According to Piaget's developmental stages, a student can not master a skill or concept unless (s)he has reached the proper stage of development. If a student is not in the correct stage of development then the skill is not learned, but instead is memorized long enough to get the child through the lesson or test.

Sixth-graders are at a transitional point in their lives. Sixth-grade is the culmination of elementary education and the beginning of

secondary education. It is often regarded in education as a "last chance" effort to teach students basic skills in many subjects. It is also a transitional time for many children in which they are moving from Piaget's concrete-operational stage to the formal-operations stage. Therefore, sixth-grade is a logical point at which to develop a curriculum to teach basic map and globe skills.

This sixth-grade curriculum will develop map and globe skills in a six-weeks' unit intended for the beginning of the school year. These skills can then be applied to learning concepts and generalizations throughout the year. Sixth-grade students typically reflect a combination of two of Piaget's developmental stages, concrete-operational and formal-operations. The curriculum will incorporate lessons and activities which are appropriate for students who are primarily in the concrete-operational stage. It will also incorporate enrichment lessons and activities for those students who have moved into the formal-operations stage of thinking. Perhaps this

approach will help today's students retain the material to which they are exposed. Hopefully, in ten years, they might still be able to identify what countries lie immediately north or south of the United States, and what oceans border the eastern and western United States coastlines.

## DEFINITION OF TERMS

Landsat: photographic-like maps developed from data collected through Earth resource satellites. These maps can represent landscape or objects such as vegetation and can be printed in black-and-white or false color.

metacognitive: the knowledge about factors which may affect one's memory or understanding.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

There is considerable literature related to the topic of map skills. Some material has focused on how map skills are learned, beginning with infancy and continuing through adulthood. Other material consists of general curriculum guides stating objectives for lessons. Also, specific units have been developed which contain materials and activities to be used by educators. These units may focus on one or several related skills. Some of the literature actually provides the materials for the teacher. The literature can be divided into four categories: how map skills are learned, the objectives for teaching map skills, the materials available to teach the objectives, and the activities which assist in the teaching of map skills.

### How Map Skills Are Learned

Much of the literature concerning how people learn map skills refers to Piaget's four stages of cognitive development: the sensorimotor, the preoperational, the concrete-operational and the formal-operational. The sensorimotor stage occurs from birth to two years old. From two to seven years old, or through the second grade, children are in the preoperational stage of development. Seven to eleven-year-olds are in the concrete-operational stage, which includes third through sixth grades. The formal-operations stage appears among twelve to fifteen-year-olds or from seventh grade through adulthood. These stages of intellectual development are chronological, but the ages of individuals within each stage may vary. The indications are that if a person is in a certain stage of development s(he) can not learn a skill or concept that requires the ability of a higher intellectual stage.

Learning begins at birth and perhaps before. Most infants are engaged in activities that help them develop map skills. Playing in a sandbox or

using blocks leads to development of spatial relationships for children who are in the sensorimotor stage of development. Frank (1987) worked with four, five, and six-year-olds, in the preoperational stage, to assess their map-reading skills. She found that instruction improved their skills. She believes that educators need to coordinate the tasks, materials and correct skill level to the abilities of the children; on this basis she developed a map skills hierarchy that can be used to teach children in the sensorimotor stage.

As young children begin to mature mentally from the sensorimotor to the preoperational stage, they begin to learn map concepts such as order, points of reference, area and proportion. Perry's and Wolf's research (1986) substantiated this. They studied 39 middle and lower-class Cambridge, Massachusetts, kindergarten through second-grade students. They suggested that children need to be taught the difference between drawing and mapping which will then enable them to learn map skills. Perry and Wolf found that five-year-olds were not always able to distinguish between a map and a



drawing of an area. First-graders can represent every item in the town while second-graders can adopt a bird's-eye view, using only width and depth. Second-graders can also create labels for some of the objects on a map. In general Perry and Wolf found that with the increase in age, there is an increase in the ability to accurately arrange items and orient them on a map and to shift to a bird's-eye view. There was a corresponding decrease in the use of detail. The children at each age level were at different points in their development of mapping skills.

Sunal and Warash (1984) proposed that certain concepts are important to mapping: boundary, interior, exterior, area, point of reference and direction. These concepts can be taught to young children through motor activity using studies of models and lines. Games and play help young children learn these skills which can then be applied to maps and globes.

As children move into the concrete-operational level of thinking, they are able to learn more sophisticated map skills. In a study of 21 second and fourth-grade Canadian

students by Geva and Cohen (1987), the children learned map skills by using four sequential Logo Microworld programs and then transferred these skills to map-reading. Findings did, however, indicate that there were developmental limits on what information could be transferred.

Extensive research and study on children at the concrete-operational level of map reasoning was conducted by Gerber (1979). He studied 600 students, eight to fourteen-years-old, in three public schools in Queensland, Australia. He, like Frank (1987), found that there is a hierarchy of map skills which can be used to develop a curriculum for map skills. Location and scale are two of the basic concepts that need to be learned before the more sophisticated skills of inference and comparison. A child can not read a map until s(he) develops the skills needed to use it. Factors which can influence the ability to read and to use maps include verbal, nonverbal and spatial abilities. Other factors which influence a map-user's ability are variables including age, home environment and previous experience with maps. Map design such as coloring and lettering

also affect a student's ability to read maps. Gerber also concluded that children were able to identify map symbols before they could understand them. The thirteen and fourteen-year-olds in his study were better able to comprehend and reproduce maps than were the eight to twelve-year-olds. This study indicated that there is a need to develop mapping language and skills within a specific range of development by using factors that have been shown to increase a child's competence in mapping skills. Gerber also concluded that there are individual differences in mapping skills among students at all age and grade levels. However, the more map work these children have, the more proficient they become at using these skills.

Harnapp (1982) studied fifth-grade students' abilities to interpret Landsat images using the map concepts of distance, orientation and identification of geographic features. He concluded that the students could identify most geographic features but that they had trouble comprehending distance and orientation. He concluded that the Landsat photo may have been too

abstract for concrete thinkers. Kirkman's and Goldberg's (1984) study of 30 teachers and 718 students in grades four, five and six in Edmonton, Canada, determined that teachers could easily be trained to teach students how to interpret Landsat imagery. The results of an achievement test taken by the children suggested that they were able to work with the satellite images.

Bosowski (1982) examined two former studies of student views of the world indicated by the maps that they drew. She concluded that the students' images of the world were based on their proximity to places, current events and cultural factors. Experience, again, appears to be an important influence in learning map facts and skills.

Two different studies indicate that gender is not a factor that influences a person's ability to learn map skills. In a computer-assisted instruction study by Bellows (1987), posttest scores indicated that boys and girls performed equally well. Thus she concluded that sex was insignificant to map-skill learning ability.

On the other hand, Ward and others (1985) suggested that men are more likely than women to use the cardinal directions and mileage indicators when giving directions. This did not indicate, however, that women are less competent in using cardinal directions or giving mileage references. During their experiment of 88 male and 88 female undergraduates, both used more cardinal directions when prompted.

There have also been many studies of adults' map skills. Thorndyke and Goldin (1981) studied adults to determine what variables are related to mapping skills. The results indicated that the following four variables could be related to these skills: spatial ability, visual/verbal processing style, motivation and experience. Spatial abilities highly correlate to mapping skills. It was concluded that a test for this ability could be used to select personnel who needed to use navigation, orientation and spatial judgment skills.

Map experts and novices were compared in a report by Ormrod and others (1986). After two experiments were performed, one using 13

university faculty members and the other using 12 undergraduate students, it was concluded that knowledge of spatial organization is needed in order to learn how to use maps. Visual-spatial ability was also found to be highly correlated to map recall when 25 undergraduates were tested on their ability to learn two maps. The use of effective study procedures was another factor that influenced performance, more especially with the high-ability students.

There have been studies that have researched strategies to use in teaching map skills. One such study (Gilbert, 1986) involved 54 high-aptitude undergraduates and 46 moderate-to-low aptitude undergraduates. It was concluded that the less successful learners were trainable in the use of metacognitive strategies to recall information about a map. Gilbert also noted that "perhaps schools are over emphasizing content skills to the exclusion of general thinking skills" (p. 30).

Anderson (1986) emphasized that mapping classes usually consist of hands-on and practical experience opportunities. He felt that map

relevance should also be emphasized to map-use educators and students. He suggested that using hands-on activities to make the learning of mapping skills a more interesting process would help create an appreciation of maps, similar to an appreciation of art.

Green and Clarke (1983) tested 495 elementary education majors at the University of Central Florida from 1979 to 1983 in order to determine whether teachers were being adequately trained to teach map and globe skills. Their findings indicated a need to increase the teachers' proficiency in teaching map skills. They suggested that a geography course be required for education majors and inservice instruction on mapping skills be conducted for teachers.

Research thus indicates that teachers need to be competent in map skills if they are to transmit this knowledge to their students. Map skills must be taught in a hierarchial fashion, beginning with the basic skills and building upon these skills until students are able to use inferencing and critical-thinking to study maps. A child, however, can not learn a skill unless s(he) is

intellectually capable of doing so; therefore, skills should be taught at Piaget's developmentally appropriate stage. In teaching map skills, factors such as experience, home environment and socialization will also affect a child's ability to learn. Spatial ability is a strong indicator of learning map skills and this ability begins to develop with young children. Young children learn the beginning skills which will be built upon in later years.



## Objectives

Much material regarding map skills presents objectives which educators believe should be taught at various grade levels. Some of the units of objectives focus on a specific grade level while other units span several grade levels. There are some units of objectives which address kindergarten through twelfth grade.

Hatcher (1979) identified four key concepts that would help preschool and primary grade children understand maps. The concepts were representation, symbolization, perspective and scale. She felt that representation was the key concept, that a child must understand that a map represents a place. All of these concepts provide a foundation for developing future map skills and can be taught to young children.

Winston (1984), building upon Hatcher's skills and concepts, took Hatcher's teaching guide a step further and covered skills and concepts needed for young mappers from kindergarten through eighth-grade. She created a grade-by-grade outline of map and globe skills plus a section on

determining what materials should be used to teach different objectives. In creating her program, Winston considered five objectives. First, students must be shown that maps can be an effective source of information. Next, specialized skills are needed in order to be able to use maps to gather information. Students must also have learned concepts that will enable them to use maps correctly. To effectively use maps, students must be able to use thinking skills. Finally, there is a sequence to learning map skills that depends on the developmental levels of the students.

Students need many opportunities and experiences in the classroom to develop map skills and concepts identified in Winston's objectives. She suggested that her objectives be used as a guide by curriculum developers who know the students' abilities and what resources are available.

Another set of objectives was developed by teachers in the Yakima School District Seven (1984); it lists geography skills and concepts for kindergarten through twelfth grades. The

objectives follow a sequential, developmental process. Students are repeatedly exposed to the skills on the basis that they must use the skills in different situations in order to understand them. These educators also felt that it was necessary to help students transfer these skills to everyday life situations. The objectives focused on the concepts of direction, scale, location, symbolization, comparison and inference.

Peters (1985) developed a curriculum for grades five through twelve to teach basic map skills through a global perspective. He blended geography, ecology and sociology to create objectives that emphasize the relationship between latitude, longitude, environment, technology and culture. However, skills and concepts about the earth in space, such as rotation, which would have been relevant to the curriculum, were not included.

Several units of objectives have been created for the junior-high level. The 4-H Outdoorsman Program (Alberta Department of Agriculture, 1978) has a unit which includes map-reading. This unit includes key skills identified by others as

necessary for map-reading ability. The State of Florida (Florida Department of Education, 1983) has a list of objectives for grades three, five, eight and twelve. These objectives are considered to be basic competencies that students need to be able to demonstrate in order to show mastery of certain map skills. Misialek (1982) has also developed a unit for junior-high students, based on the 1982 North Dakota Official Highway Map, designed to teach students basic map skills.

There are also several publications which list secondary-level objectives. Leatherwood and Porter (1981) developed a social studies curriculum that listed map skills objectives for each of the following subjects: Texas history and geography, United States history, world history, world geography, government and economics. The objectives for each subject were written in terms of student expectations. Thomas (1983) developed a unit which includes high-school-level objectives for the concepts of latitude, longitude and time; the latter concept included the more difficult concepts of the International Dateline and standard time.

Unit objectives focusing on maps can also be interdisciplinary. Johnson (1983) created Map literacy Project which uses maps from journals and periodicals. The maps are discussed in terms of the information they give and their strengths and weaknesses. Not only are map skills taught but also thinking, writing and math skills.

In summary, objectives can be found which address any of the grades, kindergarten through twelve. The basic map skills are covered in the objectives of most of the units, although not every unit covers all of the objectives. Many of the map skills units designed also include materials and/or activities that can be used to teach the skills named in the objectives.

## Materials

There is a wide variety of materials that can be used to teach map skills and related facts, concepts and generalizations. Maps, globes and atlases are the main sources. Maps include a wide range from wall maps and road maps to maps in books, journals and periodicals. Relief maps allow a hands-on approach illustrating the roughness, flatness and depth of areas of the world. Globes are the best model of the earth. Globes show proportions better because they closely represent the earth's shape. Globes, maps and atlases can show political boundaries, topographic features, ocean and wind currents, climatic regions, latitude and longitude and time zones. Atlases also contain maps which may show special features such as population density, industry and agriculture, cultural features, language areas, climate zones, time zones, political boundaries, topographic features, per capita income and other facts.

Thanks to modern technology, computers can be used to teach map skills. Computer programs can

teach or enhance map skills through the use of games or by having the children construct their own maps. For very young children, computer games can be used to teach direction, area and point of reference. Bellows (1987) found that second-graders in small groups could learn some map skills by using computer-assisted instruction. More sophisticated programs include one designed by Canipe (1983) in which students use maps to draw conclusions. Computers thus offer another opportunity by which students can experience maps.

Shaffer (1981) examined another resource that can be used to teach map skills--posters. His educator's Sourcebook of Posters is a useful guide for available posters, maps and charts.

Educators have a wide variety of materials from which they can select, ranging from basic maps to lesson plans. One type of material or a combination of the materials available can be used to teach map and globe skills to children in the different stages of Piaget's cognitive development.

### Activities

The literature makes many recommendations regarding learning activities for teaching map skills. Hatcher (1979) has created hands-on activities to teach young children four key mapping concepts: representation, symbolization, perspective and scale. Some of the activities included are games, drawing activities and writing lessons. These activities provide children with basic background concepts which can be a foundation for future understanding of these and other map skills.

Heebink (1977) developed a kindergarten through sixth-grade set of sequential map and globe skills. Each grade builds upon the skills of the year before and in sixth grade students perform some basic analysis. The unit provides objectives, activities and references. The activities include games, map construction and group work. The behavioral objectives in Heebink's work also provide teachers with a means of accountability.



Other units at the elementary level include: "Following Directions" (Bolger, 1980), "Traveling the Continents and Cruising the Oceans" (Slack, 1980), "Integrating Reading and the English-Language Arts in the Geography Curriculum" (Rushdoony, 1982) and "Mapping Games: Elementary Science Study" (Barth & others, 1971). Bolger's unit develops a child's locational skills while emphasizing reading comprehension and following directions. In the final activity, students must write directions for a friend to follow. Slack (1980) developed a unit for teaching the continents and the oceans; activities include a pretest, posttest, word searches, puzzles, crossword puzzles, cut-and-paste maps, secret codes and games.

Rushdoony's (1982) semantic mapping unit is more abstract than the previous sets of mapping units; this approach incorporates language and comprehension skills with the learning of geography concepts. Students use recall, generalizing, interpreting, sequencing and inferencing skills to create the semantic maps. Semantic maps are drawn with a circle in the

middle, from which spokes radiate. Here is an example:

hills

mountains      landforms      plateaus

plains

The unit contains the ideas and exercises needed for creating several semantic maps. The unit of mapping games (Barth & others, 1971) is a set of hands-on activities which can be used by individual elementary students or groups, both large and small.

Mellor and others (1971) developed a three-week interdisciplinary unit for sixth-graders. The class met four times a week for four forty-minute sessions. The children worked alone, in pairs and in small groups, depending on the activity. The teacher was a facilitator who moved around the classroom, watched and asked students questions when they needed help. The teacher provided children with additional material when necessary. Activities

included mapping the classroom and mapping games. A teacher's guide is included in the materials available in the literature.

Peters' (1985) curriculum, entitled "Our Common Home: Earth," included activities plus enrichment activities. The activities can be used not only to teach students the basic map skills but also to help students to become aware of cultural differences. The unit contains suggestions for evaluation and spans grade levels kindergarten through twelve.

At the junior-high-level, the North Dakota Road Maps and North Dakota Ethnic Trip (Misialek, 1982) combine hands-on use of the North Dakota map with worksheets. The North Dakota road map is used to locate areas in the state that have been settled by different ethnic groups. Students must be able to read the map and then be able to apply the information from the map to answer the questions from worksheets.

An additional module, entitled "Developing Map Skills in Social Studies" (National Education Association, 1977), was developed as part of the Florida Competency-Based Modules. It was designed

to help junior-high students improve their map skills. The activities included in the module are described. Information about the materials to be used with the activities is also provided.

Johnson's (1983) Map Literacy Project is a unit that can be used with middle or high-school students who are in transition from Piaget's concrete-operational stage to the formal-operational stage of mental development. The unit begins with concrete hands-on labeling activities and eventually leads the students into more abstract thinking activities.

Hursh and Prevedel (1985) require students to do research using the atlas. In order to accomplish the research, students need to be in the formal-operations stage of development. These activities focus on geopolitical and cultural groups, interrelationships among nations, human rights, the arms race and other issues. The activities require the use of more than one map in which students compare and analyze information. Other advanced map skills units include Thomas's "Climatic Concepts and Regions" (1982) and "Earth-Sun Relationships: Latitude, Longitude and

Time" (1983). Drawing exercises are used to measure a student's understanding in the Earth-Sun Relationships unit, combining hands-on activity with the abstract thinking of the formal-operational stage.

It is apparent, then, that there is much literature available which examines the teaching of map skills to students of grade levels kindergarten through twelve. Information is available on how people of all ages learn map skills, the objectives to use in teaching these skills, materials available for use in teaching the objectives and activities to use with students of all ages.

The review of the literature has identified many of the important skills and characteristics that should be included in any map and globe skills curriculum. Chapter three focuses on how the skills and characteristics will be emphasized to develop a unique and thorough map and globe skills curriculum.

## CHAPTER THREE

### PROCEDURES

The sixth-grade map and globe skills curriculum will consist of a six-weeks' introductory unit that will serve as a foundation for the rest of the school year. The map and globe skills will be reinforced and expanded upon throughout the year. New skills will be introduced according to the area of study at a given point in time.

The curriculum will be determined by several factors. Any educator who wants to diagnose where students are initially might construct variations of section tests for that purpose. Map and globe skills to be taught will be a combination of those which can be used by the students in everyday life situations, as well as skills that will be used and built upon in future social studies courses.

The objectives will consist of those mandated by the State of Florida. Some objectives will also be included from the state-adopted text used

in the sixth-grade social studies classes in Putnam County, Florida. The review of the related literature also indicates that there are specific map and globe objectives expected for the sixth-grade. These objectives will be reviewed. Those objectives which build upon the required state skills and suggested text skills will be used as additional objectives for the sixth-grade curriculum.

The content will be organized in a hierarchy of map and globe skills beginning with the simpler ones and then moving onto the more complex skills. These skills will then be used to learn new skills.

The learning experiences and activities will be organized according to a hierarchy of map and globe skills. Activities for most skills will include, when possible, some from each of the two developmental stages in which most sixth-grade students function. Sixth-graders are in either Piaget's concrete-operational or the formal-operations stage of mental development. The stage in which a student is capable of functioning will be a key factor in determining

which activities will be selected. When possible, there will be a selection of several activities in each developmental stage for each skill. While activities will be from both stages, the majority will be comprised from the concrete-operational stage rather than the formal-operational stage. All of the students will be able to function at the concrete-operational stage, but not all students will have moved into the formal-operations stage of development. Prior learning of any of the skills will also affect the type of activity to be used. If a student has already been exposed to a skill, it may be necessary to use more challenging activities than the ones used for students who are only being introduced to the skill.

Learning activities and experiences will reflect a variety of teaching strategies including lecture, inquiry, discovery, deduction and induction, incorporating "hands-on" experiences as often as possible. Activities will be used to offer the students practice using map and globe skills, in order to solidify learning. As skills are learned, the skills will be related to other



subject areas, either verbally or through hands-on experience. Activities will also be selected according to their potential to integrate the work with several content areas. Other factors which will affect the activities that will be used include the time necessary to implement the activities and the availability and cost of materials needed for the activities. Whenever it is possible, students will be able to choose from among activities.

Evaluation of students' learning will be an ongoing process. Tests and map exercises will be used to determine the students' mastery of skills. A final mapping project will be selected by the students as part of the final evaluation of their learning.

The curriculum will be reviewed by several colleagues, infield and out-of-field because of the integration of the subject areas. This will help to determine areas of weaknesses or areas of potential problems such as a lack of facilities, supplies or time. There will also be a pilot sampling of some of the activities to be included in the curriculum. Students will then answer a

simple rating sheet about each activity, in order to help the teacher determine the value of the lesson. Revisions will also be made throughout the year as determined by the students' changing needs. The change in students' needs will be determined by their mastery of skills as well as updated required state competencies.

## CHAPTER FOUR

### CURRICULUM

#### Rationale

The sixth-graders at Miller Middle school in Crescent City, Putnam County, Florida, need an individualized scope and sequence of map and globe skills. These students, most of whom have come through the Crescent City school system have, in general, received very little map training from kindergarten through fifth-grade.

The emphasis at the elementary level focuses on reading and math skills. If map skills are covered, it is usually in a "hit or miss" fashion, as the skills appear in the reading or math texts. The primary grades (kindergarten through third) do not even receive a grade for social studies while the intermediate grades (fourth and fifth) receive one-half year of social studies. Thus, many teachers in this self-contained classroom environment, feeling the time crunch to finish the

four or five groups in both reading and math, do not teach social studies as a subject.

Emphasis on social studies skills varies from teacher to teacher so that when the students enter the sixth-grade, they have varying degrees of social studies knowledge, especially in the field of map and globe skills. The sixth-grade is the first academic year in which students receive a daily 55 minute time allowance for social studies. It is important that the teacher prepare the students with basic map and globe skills which will be used, not only during the sixth-grade year and the rest of their school careers as well as the rest of their lives.

It is necessary to develop a unique set of scoped and sequenced objectives for the sixth-grade students at Miller Middle School. The state adopted text used by Miller Middle students is The World Past to Present, published by D.C. Heath and Company, 1985, in Lexington, Massachusetts. It contains materials that relate to many of the state-required objectives. However, students do not always understand the skills and concepts which are presented. In many

cases, supplementary hands-on materials are needed in order to cover an objective so that the students learn it. The following curriculum was developed in order to teach the sixth-grade students at Miller Middle basic map and globe skills.

## Objectives

The objectives are divided into five categories: direction; symbols; location; distance, scale and time; and comparison and inference. Direction objectives focus on the student's ability to use the directions on a compass rose. Students would be able to locate and use map legends to interpret the map symbols after completing the objectives in the symbols category. The location objectives enable students to locate places and physical features on maps and globes. Having completed this category, students would be able to read latitude and longitude coordinates. Students would be able to compute the distance between two points as well as to calculate the time in different parts of the United States when the distance, scale and time category have been taught. Comparing and inferring information from various types of maps is the focus of the last category. Information that has been learned from the previous four categories would enable the students to interpret information from a variety of maps.

Some of the objectives will be covered again during the year in various units of study involved in Florida history and world history. Some of the objectives also integrate other subjects such as science, career education, environmental science, math and language arts. Many of the objectives also correspond to the Florida state social studies objectives. The objectives developed also reflect commonalities in the research base cited in the chapter two review of the literature.

Beside the objectives which follow, the four numeral numbers indicate Florida state social studies objectives which correspond to the curriculum developed below.

#### Direction objectives

Students will be able to:

- (1038)
1. draw a compass rose.
  2. use a map to determine in which direction to travel to get to specific locations.
  3. locate the north and south poles on maps and globes.

4. identify in which hemisphere a city, country, mountain range or body of water is located.
5. trace routes on a map, showing the flow of major wind and/or sea currents.

#### Symbols objectives

Students will be able to:

- (1036) 6. use legends on various types of map to interpret symbols.
  - a. identify man-made and natural features on a map.
  - b. determine political boundaries on maps and globes.
  - c. determine elevation of given areas using an elevation key.
  - d. determine the relief (high and low) of given areas using a shaded relief key.
- (1052) 7. recognize distortions of different maps versus globes.



### Location objectives

Students will be able to:

8. use a grid system on a Florida state map to locate cities.
- (1040) 9. locate places on maps and globes when given the latitude and longitude.
- (1040) 10. use maps and globes to give the latitude and longitude of specific locations.
11. locate the prime meridian, equator, tropics of Capricorn and Cancer and the Arctic and Antarctic circles on maps and globes.
12. locate major physical features on a map and globe i.e., continents, oceans, peninsulas, gulfs, mountain ranges, plateaus, and rivers.
13. locate and name the continents and oceans on a world map outline.
- (1049) 14. locate and identify the International dateline on maps and globes.

Distance, scale and time objectives

Students will be able to:

- (1039) 15. use a mile and kilometer scale to compute the distance between points on a map.
- (1041) 16. use map insets to determine location and distance on maps.
- 17. use two or more different maps of similar areas to compare size, location and scale.
- (1048) 18. identify the time zones of the United States and their relationship to longitude.
- (1049) 19. compute time problems.
- 20. locate Earth on a map of the solar system.
- (1045) 21. explain the cause of the seasons.
- (1048) 22. explain the cause of day and night.
- 23. explain the cause of a year.
- 24. name some of the effects of the earth-moon relationship.

Comparison and inference objectives

Students will be able to:

- (1005) 25. select the correct map to use as a source of information.
- (1046) 26. use maps to gather information and make inferences.
- (1051) 27. use maps to relate temperature and climate to a people's way of life.
- (1050) 28. explain why cities of the same latitude have different climates.
- (1050) 29. explain how elevation, ocean currents and location affect climate.
- 30. name occupations that require the use of maps.
- (1044) 31. plan a trip using a highway map.

There are other objectives that are outgrowths of the basic map and globe objectives. These objectives will be covered during the school year. The objectives are as follows:

Students will be able to:

- 1. locate areas studied during the course of the year, on a variety of maps and globes.
- (1053) 2. use maps and globes to locate and

- explain geography in respect to history and current events.
- (1051) 3. use a physical map to infer adaptations necessary to live in the environment in a particular area.
- (1051) 4. locate the cradle of civilization on maps and globes and identify the advantages for settling there.
- (1088) 5. identify Earth's natural environment as a single, integrated global system i.e., acid rain, rainforest problems, Greenhouse effect.
- (1176) 6. relate geo-physical changes to social and technological problems.
- (1054) 7. develop solutions to problems created by geographical variables.
8. read maps to determine historical changes such as growth of empires or population.
9. use maps to infer why major cities developed in their particular locations.
10. use maps to trace routes of explorers and traders.

The following lesson plans require that the students keep a notebook with an ongoing list of the vocabulary terms and definitions. Notebooks are required daily and are assumed to be part of the "materials" in the lesson plans. All assignments in the lessons are to be included in the student's notebook. The text to be used is The World Past to Present, and is referred to as "text" in the lesson plans. It is assumed that the text will be part of the "materials" in each of the lesson plans.

## LESSON PLAN 1

**Purpose:** use legends on various types of maps to interpret symbols.

- a. identify man-made and natural objects.
- b. determine political boundaries on maps and globes.
- c. determine elevation of given areas using an elevation key.
- d. determine the relief of given areas.

**Vocabulary:** map, legend, political boundary, elevation, altitude, high relief, low relief, plateau, man-made, natural

**Time:** two class periods

**Materials:** Florida map

**Preparation:** Florida maps, relief maps, globes, other maps

**Organization:** individuals, small groups, class

**Procedure:**

1. Students take a few minutes to look over Florida maps.
2. Class generates definitions for "map" and "legend."
3. Students locate the legend on the Florida map.
4. Students identify types of information found on the legend.
5. Students orally define "boundary, man-made and natural," and give examples of each from the Florida map.
6. Students read text (pages 4 and 5) and define "elevation, altitude, high and low relief."
7. Students note differences between the Florida map and the elevation map.
8. Students explain that the map shows the rise and fall of the land by shading.
9. Students use the elevation key to answer questions (page 5). May need to be assigned for homework.

10. Review answers to text questions (page 2).
11. Students feel a relief map and look at globes and other maps, to see if there is relief, elevation and a legend.
12. Students name uses of maps while teacher or students write a class list on the board.

Evaluation:

1. Text questions (page 2).
2. Name uses of maps.
3. Text questions (page 5).



## LESSON PLAN 2

Purpose: recognize distortions of different types of maps versus globes.

Vocabulary: projection, Mercator, globe, flat map, azimuthal-equidistant, equal-area

Time: one class

Materials: political, projection, Mercator, equal-area, azimuthal-equidistant maps and globes

Preparation: maps out

Organization: class, small groups

Procedure:

1. Students move into small groups and look at the different types of maps (10 to 15 minutes).
2. Generate class list of each map's characteristics.
3. Name the different types of maps and define each.

4. Students decide which type of map would be better suited for different types of tasks.
5. Students pick a country and note the differences in appearance of this country on each type of map.

**Evaluation:**

1. List of characteristics.

## LESSON PLAN 3

Purpose: 1.) draw a compass rose; 2.) locate the north and south poles, equator and prime meridian on maps and globes.

Vocabulary: compass rose, cardinal directions, intermediate directions, north and south poles, equator, prime meridian, hemisphere

Time: one class

Materials: maps, globes, rulers

Preparation: rulers, maps and globes at student desks, terms defined on a handout

Organization: small groups, partners

Procedure:

1. Discuss terms.
2. Students point to cardinal and intermediate directions in relationship to the classroom.
3. Students draw a compass rose.
4. Students use their compass rose to identify directions on maps and globes.

5. Students locate the directions on their map or globe and identify the north and south poles.
6. Students locate the equator and the prime meridian, and the four hemispheres.

**Evaluation:**

1. Text questions (pages 8 and 9).
2. Students make direction labels to hang on classroom wall.
3. Students tell which direction to travel in order to go to the office, library, cafeteria, etc.

## LESSON PLAN 4

Purpose: 1.) locate the seven continents and five major oceans; 2.) identify the hemisphere in which a city, country, mountain range or body of water is located; 3.) use a map to determine in which direction to travel to get to a specific point.

Vocabulary: eastern, western, northern and southern hemispheres, continent, ocean.

Time: one class

Materials: world maps, continents ditto,

Preparation: ditto, maps and globes

Organization: small groups, class

Procedure:

1. Define continent and ocean.
2. Students identify the continents and major oceans and then label their dittoes with this information.
3. Students draw the equator and the prime meridian on their dittoes.

4. Students identify the four hemispheres orally and then mark them on their maps.
5. Using their own maps, students identify in which hemisphere each of the continents and the oceans lie.
6. Using the maps and globes, teacher names physical or political features and students determine the hemisphere in which each is located.
7. Teacher names a starting location, which students find on their dittoes. Teacher names a second location and students identify the direction to travel in order to get from the first location to the second.

Evaluation:

1. Students use their maps to answer questions about which direction to travel in order to get from one location to another.

Features to be located for step 6:

Name the hemisphere in which each of the following lie:

1. North America, northern and western
2. U.S.S.R., northern and eastern

3. Australia, southern and eastern
4. Nile River, northern and eastern
5. Argentina, southern and western
6. Japan, northern and eastern
7. Himalaya Mountains, northern and eastern
8. Gulf of Mexico, northern and western
9. Cape of Good Hope, southern and eastern
10. Indian Peninsula, northern and eastern

## LESSON PLAN 5

Purpose: 1.) trace routes on a map or globe, showing the flow of major wind/and or sea currents; 2.) explain how these currents might affect climate.

Vocabulary: jet stream, gulf stream, North Pacific current, equatorial currents.

Time: one class

Materials: globes, encyclopedias

Preparation: globes, encyclopedias available, determine locations to be used to compare hypotheses about climate to actual climate information.

Organization: small groups

Procedure:

1. Students locate and trace different ocean currents on the maps. Students note any significance in the names to their location.

Note: steps 2 through 6 can be written and/or oral



2. Students hypothesize how currents might affect the land along which the currents travel.
3. Students hypothesize what the climate might be for various areas along the currents.
4. Students locate the jet stream on a map.
5. Students hypothesize what affects the air currents may have on the climate.
6. Students use encyclopedias to check their hypotheses about climate in a location.

Evaluation:

1. Students determine if their climate hypotheses are correct. If not correct, students identify other factors which also affect the climate.

Locations for students to use:

1. western British coast
2. Washington state coast
3. eastern Argentinian coast
4. Brazilian coast
5. Chilean coast
6. either Australian coast
7. South Africa
8. western Indian coast
9. eastern Indian coast

10. Malayasia
11. Japan
12. southern Alaskan coast
13. western Central American coast

## LESSON PLAN 6

Purpose: use a grid system to find absolute location

Vocabulary: grid

Time: one class

Materials: ruler, chalkboard or overhead, Florida map

Preparation: rulers at desks

Organization: class, partners

Procedure:

Teacher will be doing the same steps 1 through 3 with the students on the overhead or the chalkboard.

1. Students draw 10 vertical lines, one-half inch apart, on their paper. Students label these lines with numbers 1-10.
2. Students draw 10 horizontal lines, one-half inch apart on their paper and label them with letters A-J.

3. Students locate the following points on their grids: A2, B7, C6, D1, E5, H3, J10, F2, H7, I4, G8, I8, D2, J9.
4. Answer grid questions (text pages 10-11).

Evaluation:

1. Using a Florida map, students use the grid to locate cities or name the coordinates of a Floridian city.
2. Play "Catch the Spy".  
"Catch the Spy" requires two players who each have a grid. Each player locates five spies on his/her grid, keeping the locations secret. Each player takes a turn and names a set of coordinates, hoping to kill one of the opponent's spies located at the position named. The first player to kill the opponent's five spies is the winner. Remind players to keep track of coordinates named so that players do not repeat coordinates which (s)he may have already called.

## LESSON PLAN 7

Purpose: locate places on maps and globes when given the latitude and longitude and identify the lines of latitude and longitude for a given place.

Vocabulary: latitude, longitude

Time: one or two classes

Materials: maps, globes

Preparation: maps and globes

Organization: class, small groups or partners

Procedure:

1. Review the term "grid."
2. Class looks at lines of latitude and identifies characteristics of latitude lines, then generates a definition. Repeat this step for lines of longitude.
3. Students practice finding locations when teacher reads coordinates.
4. Students name coordinates when teacher gives the name of a location.
5. Students practice steps 3 and 4 with partners.

Evaluation:

1. Answer questions using latitude and longitude.  
(text pages 12-13).
2. Quiz.

Coordinates and locations for steps 3 and 4

1. Sydney, Australia,  $35^{\circ}\text{S}$ ,  $150^{\circ}\text{E}$
2. Philadelphia, Pennsylvania,  $40^{\circ}\text{N}$ ,  $75^{\circ}\text{W}$
3. Washington, D.C.,  $38^{\circ}\text{N}$ ,  $77^{\circ}\text{W}$
4. Mexico City, Mexico,  $20^{\circ}\text{N}$ ,  $100^{\circ}\text{W}$
5. Leningrad, U.S.S.R.,  $60^{\circ}\text{N}$ ,  $30^{\circ}\text{E}$
6. Singapore, Malaysia,  $0^{\circ}$ ,  $105^{\circ}\text{E}$
7. Cape Town, S. Africa,  $35^{\circ}\text{S}$ ,  $20^{\circ}\text{E}$
8. Bordeaux, France,  $45^{\circ}\text{N}$ ,  $0^{\circ}$
9. Kampala, Uganda,  $0^{\circ}$ ,  $32^{\circ}\text{E}$
10. Caracas, Venezuela,  $10^{\circ}\text{N}$ ,  $67^{\circ}\text{W}$

## LESSON PLAN 8

Purpose: 1.) locate major physical features on a map or globe; 2.) locate tropics of Cancer and Capricorn, Arctic and Antarctic circles and equator on maps and globes.

Vocabulary: Tropic of Cancer, Tropic of Capricorn, Arctic Circle, Antarctic Circle, gulf, mountain range, plateau, river, bay, cape, archipelago, peninsula, source, tributary, delta, island, mouth, sea, plain, lake, valley.

Time: one or two classes

Materials: maps, globes

Preparation: vocabulary list with definitions

Organization: class

Procedure:

1. Students orally review vocabulary.
2. Using maps or globes, students name an example of each vocabulary term and give its coordinates.

3. Teacher gives coordinates and students identify which term is represented at the location.

Evaluation:

1. Teacher gives students coordinates of a location and students label the location as to which vocabulary word it represents.
2. Use terms in sentences.
3. Text questions (pages 20 and 21).

Coordinates and vocabulary term for evaluation number 1:

1. Tropic of Cancer,  $23\ 1/2^{\circ}\text{N}$
2. Tropic of Capricorn,  $23\ 1/2^{\circ}\text{S}$
3. Arctic Circle,  $66\ 1/2^{\circ}\text{N}$
4. Antarctic Circle,  $66\ 1/2^{\circ}\text{S}$
5. Gulf of Mexico,  $23^{\circ}\text{N}$ ,  $90^{\circ}\text{W}$
6. Persian Gulf,  $25^{\circ}\text{N}$ ,  $55^{\circ}\text{E}$
7. Himalaya Mountains,  $25^{\circ}\text{N}$ ,  $90^{\circ}\text{E}$
8. Andes Mountains,  $30^{\circ}\text{S}$ ,  $70^{\circ}\text{W}$
9. Plateau of Iran,  $45^{\circ}\text{N}$ ,  $55^{\circ}\text{E}$
10. Deccan Plateau,  $20^{\circ}\text{N}$ ,  $80^{\circ}\text{E}$
11. Amazon River,  $4^{\circ}\text{S}$ ,  $60^{\circ}\text{W}$
12. Yangtze River,  $10^{\circ}\text{N}$ ,  $110^{\circ}\text{E}$



13. Hudson Bay,  $60^{\circ}\text{N}$ ,  $90^{\circ}\text{W}$
14. Bay of Bengal,  $20^{\circ}\text{N}$ ,  $90^{\circ}\text{E}$
15. Cape Horn,  $55^{\circ}\text{S}$ ,  $70^{\circ}\text{W}$
16. Cape Leeuwin,  $35^{\circ}\text{S}$ ,  $115^{\circ}\text{E}$
17. Florida Keys,  $25^{\circ}\text{N}$ ,  $81^{\circ}\text{W}$
18. Archipelago of Japan,  $30^{\circ}\text{N}$ ,  $140^{\circ}\text{E}$
19. Cape York Peninsula,  $12^{\circ}\text{S}$ ,  $142^{\circ}\text{E}$
20. Italy,  $40^{\circ}\text{N}$ ,  $18^{\circ}\text{E}$
21. source of Yukon River, Rocky Mountains,  
 $59^{\circ}\text{N}$ ,  $130^{\circ}\text{W}$
22. source of Amazon River, Andes Mountains,  
 $17^{\circ}\text{S}$ ,  $70^{\circ}\text{W}$
23. Red River, tributary of Mississippi River,  
 $33^{\circ}\text{N}$ ,  $95^{\circ}\text{W}$
24. Rio Madeira, tributary of Amazon River,  
 $10^{\circ}\text{S}$ ,  $60^{\circ}\text{W}$
25. Mississippi Delta,  $29^{\circ}\text{N}$ ,  $90^{\circ}\text{W}$
26. Nile Delta,  $30^{\circ}\text{N}$ ,  $25^{\circ}\text{E}$
27. New Zealand,  $38^{\circ}\text{S}$ ,  $170^{\circ}\text{E}$
28. Hawaii,  $20^{\circ}\text{N}$ ,  $155^{\circ}\text{W}$
29. mouth of Mississippi River,  $29^{\circ}\text{N}$ ,  $90^{\circ}\text{W}$
30. mouth of Nile River,  $30^{\circ}\text{N}$ ,  $25^{\circ}\text{E}$
31. Sea of Japan,  $40^{\circ}\text{N}$ ,  $135^{\circ}\text{E}$
32. Timor Sea,  $12^{\circ}\text{S}$ ,  $125^{\circ}\text{E}$

33. Nullarbor Plain, 30°S, 125°E
34. Great Plains, 40°N, 100°W
35. Lake Superior, 48°N, 90°W
36. Lake Titicaca, 18°S, 70°W
37. Po River Valley, 45°N, 10°E
38. Central Valley, 38°N, 122°W

## LESSON PLAN 9

Purpose: 1.) identify time zones of the United States and note their relationship to longitude; 2.) locate the International Dateline.

Vocabulary: longitude, time zone, International Dateline, Eastern standard time, Central standard time, Mountain standard time, Pacific standard time, Yukon Time, Alaska Time, Bering Time

Time: one class

Materials: U.S. time zone maps, world maps, globes

Preparation: U.S. time zone maps

Organization: class, small groups or partners

Procedure:

1. Students identify each U.S. time zone on their maps and note the time differences between each.
2. Identify the line of longitude that roughly corresponds to each time zone on the map.
3. Identify the Alaska Time zone as that of Hawaii's.

4. Students calculate time for different zones across the U.S.
5. Students locate the International Dateline on their map or globe and identify the west side of the line as being one day later than the eastern side.

Evaluation:

1. Calculate time zone problems.

Time Zone Problems

1. When it is noon in the Pacific zone, it is \_\_\_\_\_ in the Eastern zone.
2. When it is 4:00 a.m. in the Eastern zone, it is \_\_\_\_\_ in the Central zone.
3. When it is 9:30 p.m. in the Mountain zone, it is \_\_\_\_\_ in the Alaskan zone.
4. When it is noon in the Eastern zone, it is \_\_\_\_\_ in the Mountain zone.
5. When it is 4:00 p.m. in the Pacific zone, it is \_\_\_\_\_ in the Central zone.
6. When it is 3:00 a.m. in the Central zone, it is \_\_\_\_\_ in the Eastern zone.
7. When it is midnight in the Alaskan zone, it is \_\_\_\_\_ in the Mountain zone.

8. When it is 7:30 p.m. in the Pacific zone, it is \_\_\_\_\_ in the Central zone.
9. When it is 5:30 a.m. in the Mountain zone, it is \_\_\_\_\_ in the Eastern zone.

## LESSON PLAN 10

Purpose: use a scale in miles or kilometers, to estimate or to compute the distance between two points on a map.

Vocabulary: scale, estimate, kilometers

Time: one class

Materials: rulers, St. Johns River map, Florida Intracoastal Waterway map, Florida road map

Preparation: rulers, maps of St. Johns River and Florida Intracoastal Waterway

Organization: class

Procedure:

1. Teacher defines vocabulary.
2. Students determine which map shows a larger area and point out St. Johns River on the Intracoastal Waterway map.
3. Students compare the scale on the maps.
4. Students use the scale on each map to determine the distance between the same two points on each map.

5. Repeat step 4 as many times as necessary.
6. Students hypothesize why the distances on the two maps are not exactly the same.
7. Students use the scales to the maps to measure distances in text (pages 6 and 7).

Evaluation:

1. Text pages 6 and 7.

Points on map for step 3

1. Lake George to Little Lake George
2. Welaka to Jacksonville
3. Palatka to Green Cove Springs
4. Palatka to Orange Park
5. Orange Park to Jacksonville
6. Doctors Inlet to Mayport

## LESSON PLAN 11

Purpose: 1.) use map insets to determine location and distance on maps; 2.) use two or more different maps of similar areas to compare size, location and scale.

Vocabulary: inset

Time: one class

Materials: Florida maps, U.S. maps, world maps

Preparation: maps

Organization: class, small group

Procedure:

1. Students look at maps of Florida and note insets.
2. Teacher defines "inset." Students name examples.
3. Students use scale on Florida map to determine distances between cities and city size.
4. Students look at U.S. maps and name insets.



5. Students compare sizes of Florida, Miami, Tampa and Keys on the Florida, U.S. and world maps, also noting the differences in scale.

Evaluation:

1. Worksheet.

Cities for step 3 (distance and size)

1. Crescent City to Jacksonville
2. Ocala to Miami
3. Tallahassee to Haines City
4. Lake City to Solana
5. Palatka to Alachua
6. What are the symbols that represent the population for each of the cities named in numbers 1 through 6?

## LESSON PLAN 12

Purpose: explain the cause of the seasons, day and night, and a year.

Vocabulary: rotation, axis, tilt, revolution

Time: one or two classes

Materials: globes, flashlights, signs with names of seasons

Preparation: desks pushed back to allow a large open space in the middle of class, season signs, flashlights, vocabulary on chalkboard, students have defined vocabulary the night before

Organization: class, later small groups

Procedure:

1. Review vocabulary orally.
2. Assign students to be the sun and the earth. Sun holds a flashlight.
3. Using students, demonstrate day and night by Earth's rotation on its axis. Students determine the cause.

4. Using students, demonstrate the tilt of Earth as it revolves around the sun. Ask students to determine the affect the tilt has on Earth.
5. Let four students (each wearing a season sign) position themselves as to where their season would occur for Florida, as Earth revolves around the sun. Class determines whether each season is correctly positioned. Students give reasons as to why or why not the season positions are correct.
6. Students then determine the season for other hemisheres at various points in the revolution, by watching Earth revolve.
7. Students determine what a revolution causes.
8. Students return to seats and the class generates a summary of the lesson, which teacher records on the chalkboard while students record it in their notebooks.

Evaluation:

1. Summary generated by class.
2. Determine seasons for different hemispheres (text pages 16 and 17).

Additional help:

1. Break students into small groups to practice steps 2-7.
2. Students use a reference book to find out how fast the earth rotates and revolves.

## LESSON PLAN 13

Purpose: 1.) locate Earth on the map of the solar system; 2.) determine some of the effects of the earth-moon relationship.

Vocabulary: planet, star, moon, names of all planets in our solar system, Milky Way, galaxy, orbit

Time: one class

Materials: map of universe, map of our solar system, reference books about moon

Preparation: desks moved back, tape on floor to mark paths of planets, students predefine vocabulary, signs for planets and moon

Organization: class

Procedure:

1. Review vocabulary orally.
2. Locate planets on map of the solar system and name them in order from closest to farthest from the sun. Note Earth as third closest planet to the sun.

3. Students who are planets move to their orbit on class floor. Planets revolve around the sun to a beat, while class notes differences in revolutions.

4. Planets sit while Earth remains and the moon takes its place. Moon orbits Earth while Earth revolves around the sun. Students hypothesize about possible effects of moon on Earth.

5. Earth rotates on its axis but ceases to revolve around the sun. Moon continues to orbit Earth. Class hypothesizes about other effects moon might have on Earth.

6. Students check their hypotheses by using reference books.

**Evaluation:**

1. Class generates a list of Earth-moon relationships.

## LESSON PLAN 14

**Purpose:** use different maps as sources of information.

**Vocabulary:** topography, climate, vegetation, population density, political

**Time:** one class

**Materials:** worksheet, text maps (pages 18, 556, 558 and 560)

**Preparation:** worksheet

**Organization:** class, small group

**Procedure:**

1. Class generates definitions of terms and records them in notebooks.
2. Using maps in text, students answer questions from the worksheet, using the map necessary.
3. Review answers to worksheet and determine why each map was used to answer the question. Class determines if more than one map could have been used to answer each question.

**Evaluation:**

1. Worksheet
2. Text questions (pages 18 and 19).

#### Worksheet

1. What is the climate of Dehli, India?
2. What is the vegetation of Florida?
3. On what coast of South America would a evergreen forest be located?
4. Name three areas of the world that are uninhabited.
5. What is the climate of New Orleans, Louisiana?
6. In what Chinese city would a temperate climate be found? Describe the climate.
7. Where in North America would there be an ice cap?
8. What is the population of Mexico City?
9. Name a major city in South America with the most dense population found on the map.
10. Name the continents that have a tundra area.



## LESSON PLAN 15

Purpose: use maps to gather information and make inferences.

Vocabulary: products, import, export, natural resources

Time: one class

Materials: import, export, product and natural resources maps

Preparation: maps, worksheet

Organization: class, small groups, partners

Procedure:

1. Students look at maps of natural resources of a region and then make inferences as to types of products might be exported from the region.
2. Students check their hypotheses about exports with maps of the same region that show exports or products.
3. Students look at maps of the region that show physical features. Students make inferences as to the type of climate for the region.

4. Students check their hypotheses using a climate map of the region from step 3.
5. Students use a map showing the Silk Road and products traded along the way in order to hypothesize about climate, vegetation and physical features of areas along the Silk Road.
6. Students use climate, vegetation and topographical maps to check their hypotheses from step 5. Students give reasons why their hypotheses were either correct or incorrect.

**Evaluation:**

1. worksheet

## LESSON PLAN 16

Purpose: plan a trip using a highway map.

Vocabulary: review of previous terms

Time: one class plus homework or additional class periods

Materials: Florida road maps

Preparation: road maps

Organization: small groups or partners

Procedure:

1. Using grid, students locate Crescent City and Tallahassee.
2. Students determine which roads they would follow to travel from Crescent City to Tallahassee. Routes may vary, so students must tell why they chose their route.
3. Students determine type of roads they follow, using the legend. (state, county, interstate, etc.).

4. Using the scale, students calculate the distance between the two cities (approximately 213 miles one-way).
5. Using as an average of 25 miles per gallon, students determine the amount of gas needed for a one-way and round trip between Crescent City and Tallahassee (approximately 8 1/2 gallons one-way).
6. Using an average of \$0.92 per gallon, students calculate the cost of gas for a one-way and round trip between Crescent City and Tallahassee (approximately \$7.82 one-way).
7. Using as average of 50 miles per hour, students calculate the time needed to travel one-way between Crescent City and Tallahassee (approximately 4 1/2 to 5 hours one-way).
8. Students note places of interest at which they may stop along the way. Students may prefer to make a diversion in order to include a particular sight.

Evaluation:

1. Check answers to steps 1-7.
2. Students choose their own destination from Crescent City and perform steps 1-7.

## LESSON PLAN 17

Purpose: use maps to relate climate to a people's way of life.

Vocabulary: geography, culture

Time: one class

Materials: climate maps

Preparation: climate maps

Organization: class then small groups

Procedure:

1. Define "culture". Name examples of culture. Repeat the process for the term "geography."
2. Using a map of ancient Sumer, (text page 32), students identify topographical features.
3. Using a climate map of the region, (text page 18), students identify the type of climate in which ancient Sumerians may have lived. Students then name the features of the climate such as rainfall, temperature, etc.
4. Students generate hypotheses using the climate information to determine how the Sumerians may

have lived and how they may have been affected by the climate.

5. Read the section from the text about Sumer (pages 31-34 and 36-39) to determine if student hypotheses are correct or incorrect.
6. After reading the text, students create a list of ways that climate affected the way of life for the Sumerians.
7. Repeat steps 1-6 for other areas such as Ancient Egypt, Ancient Greece, Ancient Rome or any modern culture.

**Evaluation:**

1. Students move into small groups and each group repeats steps 1 through 6 for a culture.

## LESSON PLAN 18

Purpose: explain why cities of the same latitude have different climates.

Vocabulary: review latitude, climate

Time: one class

Materials: world climate and political world maps

Preparation: world climate and political maps

Organization: class

Procedure:

1. Students locate Paris, France, Calgary, Canada and Vancouver, Canada on the world map and note the latitude of each city.
2. Students locate each of cities from step 1 on the climate map. List the climate of each city and define the characteristics of the climates.
3. Students identify factors that affect the climate of each city and note differences in climate among the cities although each city is located near the 50 degree north line of latitude.

4. Students break into small groups and are assigned a line of latitude. Students choose three cities that lie on or near their assigned latitude line.

5. Students hypothesize about the climate of each city and then check their answers using a climate map. Students list factors that affect the climate of the cities from step 4, whether the climates are similar or different.

**Evaluation:**

1. Repeat steps 4 and 5.



## LESSON PLAN 19

Purpose: identify occupations that require the use of maps.

Vocabulary: cartographer, occupation

Time: one or two classes

Materials: notebooks, library career center

Preparation: library scheduled, guest speaker

Organization: class, individual

Procedure:

1. Students name jobs that requires the use of maps such as cartographer, truck driver, travel agent, etc.
2. Students or teacher defines the job title. Students determine how each occupation would require the use of maps.
3. Students choose an occupation and then using the career center in the library, students answer the following questions about the career:
  - a. What education is required for the job?
  - b. What is the entry salary? What salary can

- be expected later in the career?
- c. What is the future outlook for job prospects?
  - d. What are the duties and responsibilities of the career?
  - e. What are the opportunities for advancement?

Evaluation:

1. Each student presents the information found about his/her occupation.

Quizzes can be given throughout the unit when the teacher feels that it is necessary. The tests are to be used at the end of each category of objectives. There are also projects which can be done during the unit or as a culminating project.

Some of these projects are:

1. plan a vacation, similar to lesson plan 15 but not limited to the state of Florida.
2. make a map of the student's route to school.
3. draw a free-hand map of the world or a world region.

4. make a map of the school, neighborhood or city.
5. make a class mural of a world region.
6. create a country, making maps to show its climate, topography, roads, population and political boundaries.
7. make a map of the solar system.
8. make a relief map of a state or country.

There are many sources of additional help that can provide additional practice for students who may need it. Some of the following publications contain dittoes and/or worksheets that coordinate with some of the lesson plans one through sixteen.

Madden, J. F. and Sullivan, G. E. (1985).

Understanding maps: A basic skills book.

Maplewood, NJ: Hammond Incorporated.

Job, K. and Wolf, L. W. (1976). Skills for understanding maps and globes. Chicago, IL: Follett Publishing Company.

Tidd, C. (1980). Essential map skills.

Maplewood, NJ: Hammond Incorporated.

Foreman, D. I. and Allen, S. J. (1981).

Using maps, charts, and graphs: The world.

Cleveland, OH: Modern Curriculum Press  
Incorporated.

Novosad, C., Program director. (1989).

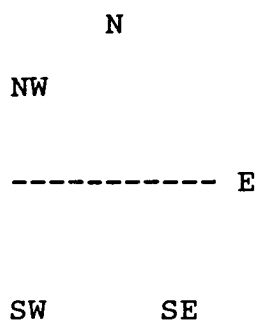
Applying skills with maps: Lesson book.

Chicago, IL: Nystrom Division of Herff Jones  
Incorporated.

## Test 1 DIRECTIONS

Students need maps or dittoes of the United States and the world and their textbooks.

1. Fill in the missing directions on the compass rose.



2. In which hemisphere would you find Florida, northern or southern?
3. In which hemisphere would you find Australia, northern or southern?
4. In which hemisphere would you find Paris, France, northern or southern?
5. In which hemisphere would you find the Himalayan mountains, eastern or western?

6. In which hemisphere would you find the Hudson Bay, eastern or western?
7. Name the two continents by which the Gulf stream flows.
8. The \_\_\_\_\_ currents are located near the equator.
9. If you are in Cairo, Egypt, in which direction would you travel to go to Kyoto, Japan?
10. If you are in Jacksonville, Florida, in which direction would you travel to go to Sydney, Australia?
11. If you are in Calcutta, India, in which direction would you travel to go to London, England?
12. If you are in Mexico City, Mexico, in which direction would you travel to go to Montreal, Canada?

Test 2 SYMBOLS

Students need world and United States maps.

1. What symbol is used on the world map to show country boundaries?
2. What symbol is used on the map of the United States to show state boundaries?
3. What symbol is used on the map of the United States to show the boundary between the United States and Canada?
4. Name two man-made features on the United States map.
5. Name two natural features on the world map.

Questions 6 through 10 require the use of the text map (pages 4 and 5).

6. Using the elevation key, what color represents 700 feet to 1,500 feet?
7. Using the elevation key, what elevation does the orange color represent?

8. What is the elevation of Ankara, Turkey?
9. What is the elevation of Algiers, Algeria?
10. Is any of Jordan below sea level?
11. What is the best representation of the world?
12. What flat map is the best representation of the world?



### Test 3 LOCATION

Students need a Florida map, world map and a time zone map.

Using the Florida map, answer questions 1 and 2.

1. What are the grid coordinates for Oak Hill?
2. What are the grid coordinates for Cedar Key?

Using the world map, answer questions 3 through 21.

3. What are the coordinates for Jacksonville, Florida?
4. What are the coordinates for Ankara, Turkey?
5. What are the coordinates for Melbourne, Australia?
6. What city lies at  $41^{\circ}$  N and  $77^{\circ}$  W?
7. What ocean lies at  $0^{\circ}$  and  $80^{\circ}$  E?
8. What continent lies at  $40^{\circ}$  S and  $70^{\circ}$  W?

9. In which hemisphere do you find the Tropic of Capricorn?

10. In which hemisphere do you find the Arctic circle?

11. The \_\_\_\_\_ separates the northern and southern hemispheres.

12. The \_\_\_\_\_ separates the eastern and western hemispheres.

13. Name one continent that is located entirely in the northern hemisphere.

14. Name one continent that is located entirely in the southern hemisphere.

15. Name one continent that is located in both the northern and southern hemispheres.

16. Name an ocean that is located in the eastern hemisphere.

17. Name an ocean that is in the western hemisphere.

18. Name a country that is an island.

19. Name a country that is a peninsula.
20. On what continent do the Andes mountains lie?
21. On what continent do you find the Deccan Plateau?
22. In a brief paragraph name three factors that can affect the climate of any particular location.

Test 4 DISTANCE, TIME and SCALE

Students will need time zone maps, Florida maps solar system maps and text (page 17).

Use the time zone map to do questions 1 through 3.

1. If it is 3:00 p.m. in the Eastern time zone, what time is it in the Western time zone?
2. If it is noon in the Central time zone, what time is it in the Alaskan time zone?
3. If it is 5:30 a.m. in Washington, D.C., what time is it in Honolulu, Hawaii?

Use the Florida map to answer questions 4 through 9.

4. Name a city that is an inset on the map.
5. Is the scale for the inset the same as the scale for the map of Florida?
6. Name two types of information that is given on the inset but is not included on the Florida map.

7. What is the approximate distance between Crescent City and Daytona Beach? Give the answer in miles.

8. What is the approximate distance between Crescent City and Miami? Give the answer in kilometers.

9. What is the approximate distance between Crescent City and Gainesville? Give the answer in both miles and kilometers.

10. What causes the seasons?

11. What causes day and night?

12. What causes a year?

13. Does each planet in our solar system have the same number of days per year? Explain.

Use the text (page 17) to answer questions 14 through 16.

14. If it is spring in the United States, what season is it in Australia?

15. If it is winter in Australia, what season is it in Brazil?

16. If it is summer in Europe, what season is it in Brazil?

Use the solar system map to answer questions 17 through 19.

17. What planet is the third closest to the sun?

18. What planets are located on either side of Earth?

19. What planet is second furthest from the sun?

20. The moon affects the \_\_\_\_\_ on Earth.

## Test 5 COMPARISON and INFERENCE

Students need texts.

Students use the atlas at the back of the text to answer questions 1 through 10.

1. Which map would tell you the type of climate you would find in Australia?
2. Which map would tell you the countries in Europe?
3. Which map would tell you where to find the world's rain forests?
4. A \_\_\_\_\_ map shows boundaries.
5. A \_\_\_\_\_ map shows how many people live in an area.
6. Looking at the vegetation map, I can say that probably very few people live in central Australia. Why?
7. Looking at the population map, I can say that few people live in Greenland. Why?

8. Looking at the political map of Asia, I can say that the Japanese probably eat a lot of fish. Why?
9. How can Florida and northern Europe both grow evergreen forests?
10. How can Paris, France and Namsos, Norway, have the same climate even though they are located at different latitudes?
11. Name two occupations that require the use of mapping and globe skills.



## TEST KEYS

## Test 1 DIRECTIONS

1.                   N  
  
                  NW           NE  
  
                  W            E  
  
                  SW           SE  
  
                  S
2. northern
3. southern
4. northern
5. eastern
6. western
7. North America, Europe
8. equatorial
9. east or northeast
10. south or southeast
11. north or northwest
12. north or northeast

## Test 2 SYMBOLS

1. solid line or dash, dot, dot
2. solid lines
3. heavier solid line than that of the states
4. answers vary
5. answers vary
6. medium green
7. 7,000 to 14,000 feet or 2,000 to 4,000  
kilometers
8. 1,500 to 7,000 feet or 500 to 2,000 kilometers
9. below sea level
10. yes
11. globe
12. depends on the job for which the map is to be  
used

## Test 3 LOCATION

1. E-12
2. E-9
3. 30°N, 82°W
4. 40°N, 32°E
5. 42°S, 145°E
6. New York City
7. Indian Ocean
8. South America
9. southern
10. northern
11. equator
12. prime meridian
13. North America or Europe
14. Antarctica or Australia
15. Africa, South America or Asia
16. Indian Ocean
17. Atlantic Ocean
18. Australia, Japan or others
19. India, Italy, Korea or others
20. South America
21. Asia
22. amount of water nearby, wind and/or ocean

currents, latitude, elevation, relief or  
others

## Test 4 DISTANCE, SCALE and TIME

1. noon
2. 1 p.m.
3. 8:30 a.m.
4. answers vary
5. no
6. street names, museums, more detailed sites of interest
7. 47 miles
8. 500 kilometers
9. 85 miles, 109 kilometers
10. tilt
11. rotation
12. revolution
13. no, distance from the sun determines revolution so that the closer a planet is to the sun, the shorter its revolution
14. fall or autumn
15. winter
16. winter
17. Earth
18. Venus, Mars
19. Neptune

20. tides, mating of animals, others

## Test 5 COMPARISON and INFERENCE

1. climate
2. political
3. vegetation
4. political
5. population or population density
6. it is a desert
7. too cold, no vegetation grows there
8. it is a group of islands
9. rainfall is the same, different varieties of evergreens
10. ocean currents moderate Norway's coastal climate
11. answers vary

## CHAPTER FIVE

### RESULTS AND CONCLUSIONS

In recent years the lack of mapping and globe skills among America's youth has become a concern of educators as well as the business community and the general public of the United States. Results from tests given by the National Assessment of Educational Progress, have confirmed the fact that many of today's youth lack basic map and globe skills. Frequently, the news media restates this need for a greater understanding of map and globe skills.

A curriculum developed to aid in the teaching of these basic skills would enable students to have a better understanding of the world and to assist them in developing problem-solving and critical-thinking skills. Skills taught through this type of curriculum would give the students a basic foundation in map and globe skills that would be useful throughout their school careers and their future employment. As an outgrowth of



the curriculum, students would be able to utilize skills acquired through the curriculum, in real-life situations.

Sixth-grade students arrive at Miller Middle School in Putnam County with a varying degree of map and globe skills. The sixth-grade is the first school year in which students are allotted 55 minutes daily for learning social studies. Prior to sixth-grade, at Crescent City Elementary School, students do not receive a grade for social studies until the fourth-grade, which is based solely upon a half-year of study. For these reasons, it is necessary to develop a basic map and globe skills curriculum to bring students to the same level in this subject area.

Research indicates that children in the sixth-grade, in general, are considered to be in the concrete-operational level of Piaget's cognitive development, although some students may have moved into the formal-operational level. Studies show that children in the concrete-operational level of thinking learn best when given "hands-on" materials. A basic map and globe skills curriculum geared toward this level

of students would include "hands-on" materials and active participation in learning. Supplementary materials could be added for those students who have moved into the formal-operational stage of development.

The enclosed curriculum in chapter four involves the students daily with "hands-on" materials. The flexibility of the curriculum allows the amount of coverage and pace necessary to achieve the objective, to be varied according to the individual needs of the students. The tests included can also be adjusted to meet the needs of the students. Bonus questions can be given to challenge the students for all groups.

The classroom setting is a factor to be considered in implementing the curriculum. There are certain characteristics of the environment that are absolutely necessary and others that are desirable although not essential. For example, desk maps for each child are desirable but one per every two students is necessary. The atmosphere must be one of caring and warmth, where a child can feel accepted. This acceptance leads to a feeling of self-esteem, which encourages learning.

Students need to assume responsibility for their own learning. "Hands-on" materials can help create this atmosphere. There are also other ways to create student involvement. When possible, students should be encouraged to assist in the planning of activities and be able to make choices from a selection of activities. A diversity of materials should be made available for a variety student abilities.

The teacher should set the tone of the classroom. The most important step in setting the tone is that the students know and understand the class rules. Students also need to know grading procedures and how these procedures will be carried out. Knowing the scope and sequence of the curriculum would also help the students know what to expect.

Students should be graded on their achievement according to their abilities. A variety of activities and strategies should be used to teach the objectives, as not every student learns in the same manner. Evaluation of student progress does not need to be confined to tests.

outgrowth for individuals working in small groups. A variety of wall maps should also be available for student use in large group activities.

Reactions to the curriculum by a team of reviewers support the point of view that many subskills may need to be taught before focus can be placed on teaching some of the objectives. For example, students may need to be taught how to read a ruler before they can be taught how to use a scale to determine distance on a map or globe. Some skills may need additional reinforcement than is provided for in this curriculum. Skills, such as reading grids or lines of latitude and longitude often need to be reviewed to maintain skill level.

There was dissension in the recommendations as to which of the first two categories of skills should be taught first, the direction or the symbol skills. However, having reviewed several sources, including many scope and sequences of map and globe skills, direction objectives were listed prior to the symbols objectives.

A review of the literature indicates that several points are essential in developing a map

and globe skills curriculum. Skills should be sequenced. Further, these skills can be learned more effectively if they are taught using maps that are familiar to the students. For example, a map of Crescent City would be a better selection for teaching students at Miller Middle School than a world map. After students learn using the familiar, the skills can then be applied to the unfamiliar. As mentioned previously, "hands-on" activities, which allow students active participation, are more effective than ones that require the student to listen passively.

Activities need to be geared towards the ability of the students who are being taught. The depth in which a skill is to be taught needs to be considered. The time allowed for teaching each objective will also vary from student to student. Personal experience supports the theory that allowing ample time for thorough learning of several skills is of greater value than minimally learning many skills. The more practice a student receives with a skill, the better the skill will be learned. Frequent reviews of previously learned skills will reinforce the skills. Basic

map and globe skills can be learned so that students can apply these skills to problem-solving and critical-thinking situations. This in turn will assist in real-life situations where problem-solving and critical-thinking skills are necessary.

Areas for further development of the curriculum in chapter four could include additional worksheets, practice sheets and student evaluation forms. These evaluation forms would be utilized at the completion of each lesson. This practice affords students participation in the planning of future lessons.

A team teaching approach could be implemented to involve the teachers and students in a broad interdisciplinary curriculum. For example, math teachers could utilize maps to develop math skills, while reading teachers might base reading selections on materials that relate to travel. Language arts teachers could incorporate the vocabulary terms into their lesson plans, and science teachers could teach the climate, flora and fauna of a region.

While curricula exist, a void of mapping and globe skills denotes a need for curricula to be taught before and after the sixth-grade program in Putnam County. A longitudinal study, of students who participate in the Miller Middle School sixth-grade mapping and globe skills curriculum, could be performed to ascertain that the skills are being retained by the students.

Computers can be used to teach mapping and globe skills. This aspect of the curriculum needs further development. The curricula could be further developed to include domains other than the cognitive, such as the affective, intuitive and psychomotor. A subject integrated curriculum which also involves all of the domains, such as a "brain integrated" curriculum, could also be explored.

Map curricula focusing on specific types of maps are another possibility for further study. For example, an entire unit could be developed utilizing maps of the solar system, galaxy and universe. This would also allow a certain amount of creativity and imagination for both the teachers and the students, as the universe is far

from being mapped. Another curriculum might concentrate on objectives for students who are in Piaget's formal-operational stage of cognitive development. Such a curriculum might contain objectives to teach the more abstract skills such as the International Dateline. Teaching world history through maps is another possible subject for further research. These are just a few of the endless possibilities for further areas of study that might be explored.

Map and globe skills are a basic tool of social studies. These skills can be used to further develop problem-solving and critical-thinking skills, which are necessary in real-life situations. These skills are also easily integrated into other subject areas. For all of the above reasons, basic map and globe skills need to be taught to today's youth.



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## VITA

Karen Anne Miles-English

## Academic Background

Bachelor of Arts in International Studies,  
University of North Carolina at Chapel Hill,  
1977

Master of Education,  
University of North Florida, 1989

## Professional Experience

Miller Middle, classroom teacher, nine years  
subjects taught include social studies, grades  
6-8; science, grades 6-7; enrichment, grade 6;  
self-contained sixth-grade.

Putnam County Slow Learners Project, two years,  
piloted project at Miller Middle School.

St. Johns River Community College  
ESL teacher, adult education division.

## Awards

1988-89 Outstanding Curriculum Development  
Project Award, University of North Florida,  
Division of Curriculum and Instruction.