

INCORPORATING MICHIGAN EDUCATIONAL
TECHNOLOGY STANDARDS TO ENHANCE MATH
AND ENGLISH LANGUAGE ARTS COMMON CORE
CONTENT STANDARDS IN GRADES 3-5

By

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This project is submitted in partial fulfillment of the
requirements for the degree of

Master of Education in Curriculum and Instruction
Special Education Option

Ferris State University
School of Education
College of Education and Human Services

May, 2014

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ABSTRACT

This project incorporates the Common Core State Standards and the Michigan Educational Technology Standards for Students and is designed to provide lessons for teachers to use in their classrooms. The ten lessons cover all of the technology objectives for Michigan students to be completed between third and fifth grade. Each of the technology lessons also cover at least one of the Common Core State Standards in either fifth grade math and/or language arts. The target audience is fifth grade teachers. By providing experience through using this project with fifth grade teachers, overall increase in the attitude toward integrating technology and the Common Core will increase. The ultimate goal will be to positively influence the future of students.

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CHAPTER 1

INTRODUCTION

Teachers have a wide variety of curricula to teach students in today's classroom. In the past, Michigan elementary teachers followed the grade level content expectations or GLCEs. In 2010, the state adopted the Common Core State Standards (CCSS). Michigan schools implemented this change in the 2013-2014 school year. These new standards are part of a national effort to align state curricula throughout the United States in Math and English Language Arts. Peterson and Kaplan (2014) stated forty five states have successfully adopted the standards as of 2014. Pressure has been put on educators to not only teach the Common Core State Standards, the Grade Level Content Expectations for Science and Social Studies, but also incorporate the Michigan Educational Technology Standards.

Michigan adopted the Michigan Educational Technology Standards for Students in October, 2009. These standards are broken into grade bands that include grades 3-5. Each grade band builds students skills to prepare them for the evolving technological world they will face throughout their educational experience and upon graduation.

Planning curriculum for new and experienced teachers with the introduction of new standards can be an overwhelming experience. Not all teachers have advanced technology skills that would allow them to easily incorporate these aspects into their teaching. Providing lessons that incorporate standards can give examples and ideas to get their creativity started. Additionally, this project will answer the question: How can educators incorporate Michigan Technological Standards and the Common Core State Standards to increase student learning?

Purpose of Project

National, state, and local school officials have provided benchmarks to guide teachers at all levels. They have provided grade level standards that allow teachers to know exactly what each student should know at the completion of specific grade levels. In many aspects of our lives, the influence of technology is increasing. Educators are required to teach technology skills to keep up with the advancements in society. It is very challenging when new requirements are added to the curriculum without additional time in the classroom to teach these skills. Multiple requirements are then combined into daily activities. The introduction of technology standards has added a new level of change that many are trying to include in the framework of their lessons. Many teachers I have talked to find it very difficult to complete the curriculum requirements in the amount of time expected. These facts inspired me to design a project to help teachers provide maximum content to students while allowing more time for mastery. This can be accomplished by combining the Common Core State Standards and the Michigan Technological Standards.

Rationale of Project

Educators at the elementary level need to understand the importance of not only teaching their required curriculum, but also preparing students for a modern community that includes continually advancing technology. Kopietz, Wall & Taylor (2012) reports have shown that there are many jobs in technology and math that go unfilled in the United States due to lack of training despite unemployment that has been at eight percent or higher for many months. The units included in this project will include both Common Core State Standards and Michigan Technology Standards to help set a foundation to meet these needs.

Significance of Project

It is evident to most educators that the need for students to learn and understand technology is ever increasing. Educators have the added requirement to deliver best practice strategies to help each individual learn all of the standards. The significance of exposure to this unit and implementing material into individual classrooms will hopefully improve the comfort for teachers to develop their own material that will fit the combining of standards into everyday practice.

KEY TERMS

Common Core State Standards- National reading and math standards that cover 46 of 50 states and were fully implemented in the 2013-2014 school year.

Michigan Educational Technology Standards for Students- Michigan technology requirements broken down into grade bands that include K-2, 3-5, 6-8, and 9-12 and are

aligned with the International Society for Technology in Education, National Education Technology Standards for Students and the Framework for 21st Century Learning.

CHAPTER 2

LITERATURE REVIEW

History of Michigan Standards

The National Commission on Excellence in Education (1983) studied the condition of the education system in the United States. This study was in response to reports that the students in the country, including Michigan, were falling behind the test scores of several other countries around the world. The commission was very critical of the quality of education provided to students in the United States. As a result, change was made that decentralized decision making to local authority who could design local curriculum to best fit the needs of their students. State governments and local school boards had more power than before.

President George H. W. Bush supported the Charlottesville Education Summit in 1989. Barton (2002) reports that several key academic decisions were made during this meeting. First, student performance would increase in challenging subject matter. This performance increase will also benefit minority populations by getting them to a level that would closely reflect the entire student population of the country. Next, the group

formed teams of academic discipline professionals to create national standards. This was the first step to forming a set of standards for the entire country to follow.

Five years later, President Clinton called for the Goals 2000: Educate America Act of 1994. This act covered a broad area of issues including the need for incentives in research, consensus building, and systemic changes needed to ensure equitable educational opportunities and high levels of educational achievement for all students. Watt (2011) stated to accomplish these tasks, educators were required to complete professional development on a regular basis to comply with updated certification requirements. Watt (2011) described two key parts of this act as it relates to standards. National standards would now be used as a blueprint to develop and align state standards to state assessments. It also required each state to develop content and performance standards in reading and math with mandated state assessments directly linked to these standards. Michigan's answer to this new regulation was the Michigan Educational Assessment Program (MEAP) which is still currently responsible for elementary assessments.

Large and widely controversial reform changed education across the United States in 2001 under the direction of George W. Bush. The No Child Left Behind Act (2001) included an increase in the amount of assessments provided to students to show growth in core subjects and the establishment of Adequate Yearly Progress (AYP). Michigan assessed students each fall using the Michigan Educational Assessment Program based on the Grade Level Content Expectations (GLCEs). In an introduction letter to the GLCEs, Canul (2005) stated the GLCEs were a result of the latest research, the Michigan Curriculum Frameworks Content Standards and Benchmarks, and the Teaching, Learning

and Assessment Standards. The introduction to the GLCEs includes warnings that they do not represent the full scope of classroom instruction, rather provide teachers with assessment targets and instructional goals. These GLCEs are still the standards teachers are using in Michigan elementary schools in the subjects of science and social studies. In 2008, the math and English language arts would change to a national model called the Common Core State Standards.

No Child Left Behind (2001) had been in place for seven years when the Obama administration introduced a new policy that would help improve exposed problems in the education system. McGuinn (2011) reports that the Race to the Top competitive grant program had two specific goals including 1) create political cover for state education reformers to innovate and 2) help states construct the administrative capacity to implement these innovations effectively. With 1.35 billion dollars in grants in the 2011 federal budget, states moved quickly to satisfy the requirements and earn a share of the money. McShane (2012) suggested that the President Obama, with experience working with the poor, allowed for reformation to unions, the teacher evaluation system, and standards. Forty-five states adopted the Common Core State Standards (CCSS) as a requirement for the grant. Cavanagh (2013) acknowledged that electronic assessments directly related to the CCSS will be used in the 2014-15 school year for the first time. This author continued by stressing the importance of school districts, educators, and students to be as familiar as possible using technology to reduce test anxiety. Recent education reform is affecting all students across the United States.

What Are Common Core State Standards?

The Common Core State Standards (CCSS) are Mathematics and English Language Arts content standards that are taking over previous standards in 46 states, including Michigan. Schmidt and Houang (2012) stated that the Common Core State Standards were created by the National Governors Association and the Council of Chief State School Officers in 2010 to increase student achievement. Their research compared the CCSS Mathematics Standards to those of the top 31 performing countries around the world. They concluded that, “this recent national standards movement has put the United States in a comparable position to most countries in the developing world” (p. 6). The CCSS are also comparable to the 50 state standards that are mostly being replaced. Schmidt and Houang (2012) also suggested that when comparing the CCSS and previous state standards, “there was not a single model of coherence; it would be very unlikely that alternative models of coherence would be very different from each other given the local organization of the discipline” (p. 7).

Rust (2012) reported Math and English Language Art were selected to be changed first because of their ability to be assessed and for the ability of students to build skill sets in other subject areas. Specifically, in 3rd through 5th grade mathematics, five categories are given including: Operations and Algebraic Thinking, Number and Operations in Base 10, Number and Operations-Fractions, Measurement and Data, and Geometry. These standards are similar to the Grade Level Content Expectations used previously and add increasingly difficult material at each level. English Language Arts (K-5) included Reading, Writing, Speaking and Listening, and Language. Reading and the Two C’s: Common Core (2012) writes that the literacy standards extend across multiple subject

areas and they provide what students need to be successful. Upon completion of 5th grade, the Mathematics standards change and the English Language Arts standards are greatly expanded into other subject areas.

What are Technology Standards?

The Michigan Department of Education adopted the Michigan Educational Technology Standards for Students in 2009. They shared similar goals with No Child Left Behind in their efforts to ensure all students are technology literate by the time the student finishes the eighth grade. Alobiedat (2009) reviewed the Michigan Educational Technology Standards for Students (METS-S) are aligned with the International Society for Technology in Education's (ISTE), National Education Technology Standards for Students (NETS-S) and the Framework for 21st Century Learning. There are standards for all students in grades K-12 and are divided into grade bands including K-2, 3-5, 6-8, and 9-12. The varieties of skills students will know when completing 5th grade include: Creativity and Innovation, Communication and Collaboration, Research and Information Literacy, Critical Thinking, Problem Solving and Decision Making, and Digital Citizenship.

Who is involved in combining standards?

It takes a large group effort to implement the integration of the Common Core State Standards and the Michigan Technology Standards. The national and state governments have provided the framework separately for local school officials to follow. One of the requirements under the Common Core is that schools adapt a new online model of assessments. This will require school districts to upgrade technology to meet the

needs of this program. In recent years, the availability of technology in American classrooms has increased dramatically with 97% connected via high-speed connection. The student-to-computer ratio dropped from 4.4 in 2003 to 4 in 2008 (Clausen, Britten & Ring, 2008; Wells & Lewis, 2006). Hundreds of schools have also implemented 1:1 laptop programs (Bebel & Kay, 2010). Ash (2012) suggests a positive side effect to schools meeting this technology need will be an improved technology base in schools throughout the remainder of the school year. This will improve the chances that teachers will have access to technology to integrate standards in daily lessons.

Reasons Schools Need to Change

Administrators and teachers will have to work together to learn the technology and implement these skills into their daily lesson plans. Viviano (2012) informs that teachers are the “forefront of change and are key agents of change” (p. 3). He continues to note that teachers should stay informed in business and industry to stay current in their professional and trade areas, as well as pedagogy. Neiss (2005) discussed how education must shift to incorporating technology into the classroom. A shortage of math and science teachers has put pressure on institutions to produce teachers that are strong in content knowledge, and able to utilize technology to assist students to become proficient. Grey, Thomas, and Lewis, (2010) concluded a study that showed teachers are coming out of school unprepared to use technology. Only 24 percent of undergraduate and 34 percent of graduate students reported a moderate to major extent of preparedness to make effective use of educational technology. The numbers grew to 54 percent when training was provided at the school. Results suggest that identification of teachers that need additional training is necessary. Once they are identified, professional development at the school

level is key to providing the support to teachers needed to provide adequate curriculum standards. Teachers who are not provided with enough technology training at their local schools can find resources at the Michigan Association for Computer Users in Learning (MACUL) website or attend their annual conference.

Resistance to Change

Experienced teachers are also being expected to integrate the CCSSs and technology standards. The strongest predictors of teacher-directed student use of technology are; 1) teachers' experience with technology, 2) belief that technology is beneficial to meet instructional goals, 3) perceived importance of technology for teaching, and 4) experiencing obstacles with the integration of technology appears to be one deterrent to teachers using technology in the classroom (Miranda & Russell, 2012). These facts are important to help teachers bridge the gap between integrating standards including the use of technology and the amount of money spent on technology in schools. "Despite billions of dollars spent on technology over the course of the past two decades, evidence suggests that technology use in the classroom is not as extensive as the exponential increase in expenditures may imply" (Cuban, 2006, p. 662).

Integrating CCSS and Technology

The idea of integrating the Common Core State Standards and the Michigan Educational Technology Standards for Students is a simple idea that can be very difficult to accomplish. Hamilton (2007) states, "Integration is when classroom teachers use technology to introduce, reinforce, extend, enrich, assess, and remediate student mastery of curricular targets" (p. 3). She continues to state misconceptions of integration that

include: using managed instructional software, students going to learn technical software while the teacher stays behind in the classroom to grade papers, using the internet to play games, and replacing a teacher with a computer. Hamilton (2007) concluded by reinforcing that integration is, “an *instructional choice* that generally includes collaboration and deliberate planning—and always requires a classroom teacher’s participation” (p. 3).

Effective Professional Development

The federal and state governments have put national and technology standards in place that are highlighted in this project. There has also been a major effort that gives technology access to most school age children across the country. The teachers who have not stayed on pace with this fast moving trend must have access to effective professional development. To find out how to most effectively help these teachers adapt to the change, the following study has been concluded to help find the problems at the lowest level. Ertmer (2012) reported that the biggest factor in the use of technology is the teacher’s personal attitudes and beliefs as to whether or not it would have an impact on student success. The other main reason was the current level of knowledge and skill of the teacher. Ertmer (2012) suggested professional development should be conducted that focuses on attitude and belief. This can be accomplished by experiencing successful teaching and learning in the teachers own classroom. Another possible solution for elementary educators is the use of peer mentoring. Zhao & Bryant (2005) suggests having a one on one mentoring program that goes into the classroom. When becoming extremely familiar with the teaching style, the mentor can help infuse technology from their own personal use or other research. Overall, by implementing a provided integrated unit, the

teacher can collaboratively work with peers to improve personal attitude, technology skills, and student achievement.

CHAPTER 3

METHODOLOGY

Description of Project

One collection of 10 lessons was designed to incorporate the 3rd through 5th grade Michigan Educational Technology Standards with the Common Core Content State Standards at the 5th grade level. The collection consisted of both Math and English Language Arts lessons and assessments. The lessons provided examples to teachers who were in need of incorporating standards to gain comfort with the strategy. The goal was to propel them to incorporate these skills in their standard teaching practices. Universal design for learning strategies were implemented that will help all learners achieve success.

This project is a collection of 10 technology lessons at the fifth grade level. Teachers were able to select lessons that supplement their previously designed units to increase student understanding of the Michigan Educational Technology Standards and the Common Core State Standards in Math and English Language Arts. Although multiple lessons were provided for certain Michigan Educational Technology Standards in this collection, teachers can decide how many are used depending on student understanding. More lessons will likely be needed if students did not master the

objectives in grades 3 and 4. Upon completing lessons under each standard, teachers will have covered each element listed on the Michigan Technology Standards in grades 3-5. Teachers will have also covered a variety of material required of them in the Common Core Content Standards. Lessons were selected based on completing the full Michigan Technology Standards objectives for fifth grade.

CHAPTER 4

PROJECT

Introduction to Integrated Math and ELA Collection

The following collection of 10 lessons will help fifth grade teachers integrate the Michigan Educational Technology Standards and the Common Core Content Standards. The lessons are a sample of what is available on the internet and other resources. This collection was selected based on covering all of the objectives in the Michigan Educational Technology Standards. The internet is an excellent resource to use when planning integrated lessons to any subject matter taught in schools today. All of the information provided will allow teachers to gain experience in the classroom, help develop a positive attitude towards integration, and increase student achievement.

This unit will focus on 3rd through 5th grade technology standards. A combination of math and language arts lessons will encompass the full standards. Educators should plan on incorporating three new lessons a year into their teaching.

Incorporating Michigan Educational Technology Standards To Enhance Math and ELA Common Core Content Standards A Fifth Grade Unit

Lesson 1- Technology and Society

3-5.CI. Creativity and Innovation

Lesson 2- Woolly Mammoth

3-5.CI. Creativity and Innovation

Lesson 3- Time Line Lewis and Clark

3-5.CI. Creativity and Innovation

Lesson 4- Rebus Writing

3-5.CC. Communication and Collaboration

3-5.TC. Technology Operations and Concepts

Lesson 5- Introduction to Me

3-5.CC. Communication and Collaboration

Lesson 6- Kids Copyright Laws

3-5.RI. Research and Information Literacy

3-5.DC. Digital Citizenship

Lesson 7- Editing and Revisions Made Easy

3-5.TC. Technology Operations and Concepts

Lesson 8- All About Me

3-5.RI. Research and Information Literacy

3-5.TC. Technology Operations and Concepts

Lesson 9- M&M Math

3-5.RI. Research and Information Literacy

3-5.CT. Critical Thinking, Problem Solving, and Decision Making

Lesson 10- US Weather Chart

3-5.CT. Critical Thinking, Problem Solving, and Decision Making

Lesson 1

Technology and Society

Students will research to define and find examples of technology.

Suggested Time: 2-3 45 minute class periods

Michigan Technology Standards

3-5.CI.2 Participate in discussions about technologies (past, present, and future) to understand these technologies are the result of human creativity.

Common Core State Standards

CCSS.ELA-Literacy.W.5.7: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

CCSS.ELA-Literacy.RI.5.3: Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Objectives:

Student will define technology.

Student will research technological advances and create a timeline to display information.

Resources needed:

Computers with internet access

Links to prior knowledge: Students need to be familiar with vocabulary such as: technology and websites. Students also need to be able to research and interact with the Internet.

Procedure:

1. Brainstorm with students the definition of the word “technology”. Ask when did technology begin?
2. Define technology as “any invention, including tools, machines, materials, and sources of power, that makes people’s work easier.” Then ask students to re-evaluate their idea of when did technology begin. They should recognize that technology began the first time a human used a stick or a rock as a tool or a weapon. Such advances as the ability to make fire, the development of agriculture, and the use of simple machines such

as the lever or the inclined plane count as technology, as do electricity, nuclear power, and the computer.

3. Divide the class into groups, and have each group brainstorm a list of at least 10 technological advances they think should be included on a time line of the most important technological advances in human history.
4. Using available resources have students do research to find the dates for the technological advances they plan to include on their time lines.
5. Students can make their timelines using <http://www.readwritethink.org/materials/timeline/index.html>.
6. When all groups have completed the timelines, display them around the classroom. Have students compare the time lines to see which technological advances were included on most of them.

Assessment:

- Exit slip activity: Ask students to define technology.
- Evaluation of Timelines:

Three points: includes more than 10 items, dates accurate, timeline carefully prepared.

Two points: includes at least 10 items, most dates are accurate, timeline satisfactorily prepared.

One point: includes less than 10 items, several inaccurate dates, timeline carelessly prepared.

Technology Election

Have the class hold a “nominating convention” for the single most important technological advance in human history. For each advance nominated, have students who would vote for it meet to prepare a “campaign speech” that will persuade classmates to agree with them. After speeches have been given, hold an “election” to see which technological advance the majority of students in the class think is most important.

Make a Model

Have interested students work together to make models of the technological advances they consider most important. If a group of students chooses something too complex for a model (e.g., a computer), the group members can produce a labeled diagram instead.

Accommodations:

Reduce number of items expected in each slide

Work with a partner

Limit sites and choices for research

Extensions:

1. Debate the issue of computers that think on their own. What would be the advantages of this level of computer intelligence? What would be the disadvantages?
2. How would your school be different if there were no computers? Survey the different parts of your school (office, cafeteria, etc.) to find out where computers are used. Discuss how work would be done without computers to help us.
3. Describe how your class might use e-mail.
4. What information might your class want to share on a Web site? Remember this information could be text, photographs, drawings, sound, or vi

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plan_s_grade_5.htm.



Lesson 2

Woolly Mammoths

Day 1 and 2

This lesson should be used to teach note taking skills. This lesson corresponds with the Mae Jemison note taking lesson.

Suggested Time: 2-3 45 minute class periods

Common Core State Standards:

CCSS.ELA-Literacy.RI.5.7: Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

CCSS.ELA-Literacy.RI.5.3: Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Michigan Technology Literacy Standards for Students:

3-5.CI.1 Produce a media-rich digital project aligned to state curriculum standards (e.g., fable, folk tale, mystery, tall tale, historical fiction)

Behavioral Objective: Students will research online about Woolly Mammoths to record notes in outline form

Day 1:

Resources Needed: Computers; Woolly Mammoths ; Woolly Mammoths Power Point; Woolly Mammoth Outline Template; printer access **resources found in extra material

Links to Prior Knowledge: Discuss the animals that Early Native Americans encountered

Procedures: Readiness Activity:

Activities:

1. Students will use the Woolly Mammoths Power Point to access information and read the article.

2. After reading the article, students will access the Woolly Mammoth Outline Template and complete the information.
3. Students will follow steps to save their completed outline in a class folder.
 - Go to edit
 - Click on **Select All**
 - Right click on **Copy**
 - Go to **File**
 - Click on **New** and if a Blank document does not appear then click on “Blank Document”
 - Right click **Paste**
 - Have students fill out the necessary information to complete their outline in the **New Document**
 - Double click on **Woolly Mammoths Saved Outlines** folder
 - In file name box, **type in first & last name**
 - Click on **Save**

Assessment: Successful completion of the outline (all categories filled in with appropriate information) and saved it correctly.

Follow-Up: Students will continue independent research and note taking on Day 2. Students can also identify other sources to gather more information about Woolly Mammoths.

Accommodations: Text to voice reading of webpages, Cut & Paste hard copy outline, partner on computers

Challenge: Students can identify possible causes for extinction.

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne’s County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm.

Woolly Mammoth:

-Information:

<http://www.enchantedlearning.com/subjects/mammals/mammoth/index.shtml>

-Outline Template

Woolly Mammoths

Woolly Mammoths

Physical Description

Body Covering

b)

Ears and Nose

b)

c)

Size

a)

b)

Tusks

a)

b)

Time Period

Years Lived

a)

b)

"WOW" Facts

a)

b)

Lesson 3

Time Line Lewis and Clark

Students will research Lewis and Clark to create a timeline. Day 1

Suggested Time: Two 45 minutes lessons/days (Note: Day 1 Readiness Activity is to be completed in the classroom; Day 1 Activities will be in the lab.

Objective: Student will be able to research a topic and create a timeline.

Common Core State Standards:

CCSS.ELA-Literacy.RI.5.2: Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

CCSS.ELA-Literacy.RI.5.5: Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.

Michigan Technology Standards:

3-5.CI.2 Use a variety of technology tools and applications to demonstrate his/her creativity by creating or modifying works of art, music, movies, or presentations.

Resources Needed: HM 5th grade Anthology (©2003) *History of Recorded Sound* text article; Access to a printer & internet sites; [Article about Lewis & Clark](#); [Lewis & Clark Timeline](#) site; [Student directions](#) available in extra material and on the website

Links to Prior Knowledge: Knowledge of Timelines; Sequence of events; internet access

Day 1/Lesson 1: Procedures:

Readiness activity:

1. Have students form a line in the classroom based on date of birth from the earliest to the latest.
2. Discuss how timelines are based on the passing of time in a sequential order.
3. Read and discuss “How to Read a Time Line” Technology Link.
4. Introduce vocabulary used in the article and how it connects to the inventions shown.
5. Discuss the connection between the placement of the pictures and captions to the inventions related to sound that are displayed along the timeline.
6. Read the article (pages 178-181).

7. Have students discuss and explain how the format of the article makes it easier to read.

Activities:

1. Introduce the concept of explorers. Activate prior knowledge; Identify and discuss any explorers that they have learned about previously. Explain that today they will read information about Meriwether Lewis & William Clark, two important explores in American History.
2. Have students access and read the Article about Lewis & Clark which is found on their Student directions page.
3. Have students visit the website Lewis & Clark Timeline to review their life in a timeline version.

Assessment: Teacher observation of student knowledge of timelines. Participation in class discuss, readiness activity and following directions on the Student direction page.

Follow-Up: Students continue independent research on Lewis & Clark.

Accommodations: Hard copy of articles & direction page. Manipulative picture cards could be created to use with the inventions listed. Students are given the opportunity to physically organize themselves during the readiness activity.

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plan_s_grade_5.htm.

Time Line Lewis and Clark

Students will research Lewis and Clark and create a timeline. Day 2

Suggested Time: Day 2 will continue in the lab. Follow-up can be completed in the classroom.

Objectives: Student will be able to construct a timeline.

Day 2/Lesson 2:

1. **Resources:** Access to a printer & internet sites; Article about Lewis & Clark; Lewis & Clark Timeline site; and a free online timeline maker

Readiness Activity: Review timeline samples from Lesson 1

Activities:

2. Using the information read on the Lewis & Clark timeline site, students will complete a chart by adding dates to the Online Template Time Line Maker
3. Students will then print a copy of their completed template and cut boxes to rearrange into an accurate timeline depicting the travels of Lewis & Clark.
4. Students that are early finishers may create their own timeline in a Word Document with text boxes.

Assessment: Utilizing the internet links, students will date given events and sequence the events into a timeline format. Completed timelines will contain 12 events in the correct sequence.

Follow-Up: Students will then complete a personal timeline about their life including pictures, captions, dates and important events in their life. Students may create an electronic timeline of their life.

Accommodations: Number of events may be adjusted and pictures used.

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plan_s_grade_5.htm.

Lewis and Clark Timeline:

Information: http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/Timeline_Lewis_and_Clark/Lewis.htm

Timeline: <http://www.lewisclark.net/timeline/index.html>

Student Directions: http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/Timeline_Lewis_and_Clark/StudentDirections.htm

Lesson 4

Rebus Writing

Subject: English Language Arts Grade: 5th (can be adapted for 1st – 5th)

Course: Communication

Title: Rebus Writing

Length of Unit: One or two class periods

Materials Needed:

color printers

I Love You: A Rebus Poem by Jean Marzollo (available online or at any library)

Michigan Technology Standards

3-5.TC.1 Use basic input and output devices (e.g., printers, scanners, digital cameras, video recorders, projectors)

3-5.2.CC.3 Use a variety of media and formats to create and edit products (e.g., presentations, newsletters, brochures, web pages) to communicate information and ideas to various audiences.

Common Core State Standards

CCSS.ELA-Literacy.RF.5.4b Read grade-level text with purpose and understanding.

CCSS.ELA-Literacy.RF.5.4b Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.

Prior Knowledge:

- Students must have basic computer skills.
- Students are familiar with the software program for printing.

Cue Set:

- The teacher begins a discussion by posing two questions:
 - What is a rebus?
 - How can I relate important values to my schoolmates?
- The teacher then reads the book *I Love You: A Rebus Poem* by Jean Marzollo.

Best Shot Instruction:

- After listening to and discussing the book, the class reviews the concept of a rebus.

- The students are each directed to create a rebus with the use of technology. The project guidelines are discussed and they learn they are to share their finished projects with students from a first grade class.
- The students use PrintShop Deluxe to complete rebus pages for their fellow schoolmates.
- The fifth graders are introduced to their first grade student partners. Then they share their finished projects with the assigned students.

Reteaching and Enrichment:

The students are given class time to share the rebus projects with the first graders or other fifth grade students. Time is also allowed for the older students to assist the younger in checking out books from the library and then read those books to the students.

Review and Closure:

The students are given time to create a bond with younger students through the rebus projects and shared reading time.

Assessment:

- Students successfully use technology to create a professional quality rebus for younger students.
- The teacher's observations of the sharing time spent between fifth graders and first graders are noted.

Wise, J. & Sherizan, E. (2012) *M & M Math Lesson Design*. East Detroit Public Schools. Retrieved on January 20, 2013 from <http://www.macomb.k12.mi.us/eastdet/Plans/PlanList>.

Lesson 5

Introduction to ME

A Power Point Project

This project uses PowerPoint to present information about each student.

Day 1

******Great Activity for the beginning of the year. Students will create a PowerPoint presentation to introduce themselves to each other.**

Suggested Time: 45 minutes

Common Core State Standards:

CCSS.ELA-Literacy.W.5.2a Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.

Michigan Technology Standards:

3-5.CC.1 Use digital communication tools (e.g., e-mail, wikis, blogs, IM, chat rooms, videoconferencing, Moodle, Blackboard) and online resources for group learning projects.

3-5.2.CC.2 Identify how different software applications may be used to share similar information, based on the intended audience (e.g., presentations for classmates, newsletters for parents.)

Objective: Student will be able to create a Power Point presentation.

Resources Needed: Computer with Power Point program

Links to Prior Knowledge: Knowledge of the principles of Power Point and experience in creating a basic Power Point Presentation including how to save a document.

Procedures: Readiness Activity:

1. Discuss within teams personal information and share one important fact about each person.
2. Have individual students complete the personal information sheet Day1AllAboutMeBrainstormingSheet. (in extra materials)

Activities:

1. Open the Power Point program
2. Right Click, highlight and click on the **Slide Design** button.
3. Select a design to be the background for your presentation. Click on it.
4. Type your name in the title block.
5. Type one adjective that describes you best in the subtitle box.
6. Insert a new slide by clicking on the **Insert tab** and choosing **New Slide**
7. Type into the title block “Introduction.” Then click on the text section and add the information about yourself from your Brainstorming Sheet-Slide 2.
8. Insert additional slides and complete by filling out the text blocks using the Day1AllAboutMeBrainstormingSheet
9. When complete, save your presentation.

Assessment: Students were able to begin and save their Power Point Presentation.

Follow-Up: Extension-Lesson 2: Students will use the Day1Extension sheet to repeat the activity by interviewing a peer.

Accommodations:

Assistance with technology; work with a peer; group project

Allow students to type and save the Brainstorming sheet in Word, then copy and paste the information into Power Point.

Day 1 and 2 Brainstorming sheets are modified.

Challenges:

Have students who need an extra challenge complete the Day 1 Extension and compare themselves to their partner.

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne’s County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm.

Introduction to ME

A Power Point Project

Lesson 2

Suggested Time: 45 minutes

Objectives: Students will continue to create and edit power point presentation.

Behavioral Objective: Students will create a Power Point presentation.

Resources Needed: Power Point presentation, headphones, or speakers.

Links to Prior Knowledge: Knowledge of basic Power Point

Procedures:

Readiness Activity: Students access their Power Point presentation

Activities:

1. Students will open their Power Point presentation
2. Have students insert pictures in their text box by going to insert tab.
3. Scroll down to picture and click on Clip Art. Then type in “Nature” to search for an appropriate picture.
4. Once you have found a picture click on it and it will appear in your text box. To move it, click and drag to its new position.
5. Then add transitions to the slides. Go to the Slide show tab at the top of the page and click on “Slide Transition.” Click on various types to see which ones they want to apply.
6. Then students will add sound to the transitions by staying in the same box then click on modify speed and sound.
7. Have students choose one from both categories. If the students want a different sound, speed, or design for each slide, they **MUST** click on slide transition and choose one of the categories for each slide. If they want the same sound, speed, and design for all slides they **MUST** click on apply to all slides.
8. Have students save their new presentation replacing their old document.

Assessment: Student completion of new PowerPoint presentation and shared presentation.

Follow-Up: Have students to continue to create new slides and practicing the new commands.

Accommodations:

Work with partners, teacher one-to-one assistance, headphones

Copy and Paste Brainstorming sheet information from Word to PowerPoint

Modify amount of slides expected

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools.
Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm.

Introduction to ME:

Brainstorming Sheet:

All about Me Brainstorming Sheet for PowerPoint**Title for Slide 1**

(Your Name)**Text for Slide 2**

Write a few sentences introducing yourself. (For example, how old are you? What color hair and eyes do you have? How tall are you? Where do you live? Who was your teacher last year?)

Text for Slide 3

Describe your family. (For example, who do you live with? What do your parents do for a living? How many brothers and sisters do you have? Describe the members of your family?)

Text for Slide 4

Describe your pets and hobbies. (For example, what are your pets' names? What are your favorite things to do? Do you collect anything? What is your favorite color? What's your favorite sport?)

Day 1 Extension:

All about _____ Brainstorming Sheet for PowerPoint

Title for Slide 1

Subject's Name)

Text for Slide 2

Write a few sentences introducing your partner. (For example, How old are they? What color hair and eyes do they have? How tall are they? Where do they live? Who was their teacher last year?)

Text for Slide 3

Describe their family. (For example, who do they live with? What do their parents do for a living? How many brothers and sisters do they have? Describe the members of their family?)

Text for Slide 4

Describe your pets and hobbies. (For example, what are your pets' names? What are your favorite things to do? Do you collect anything? What is your favorite color? What's your favorite sport?)

Lesson 6

Kids Copyright Laws

Students will investigate copyright laws and how they apply students' work

Suggested Time: 45 minutes

Common Core State Standards: Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Michigan Technology Standards:

3-5.RI.3 Understand and discuss that web sites and digital resources may contain inaccurate or biased information.

3-5.RI.4 Understand that using information from a single internet source might result in the reporting of erroneous facts and that multiple sources should always be researched.

3-5.DC.1 Discuss scenarios involving acceptable and unacceptable uses of technology.

3-5.DC.2 Recognize issues involving ethical use of information.

3-5.DC.3 Describe precautions surrounding personal safety that should be taken when online.

3-5.DC.4 Identify the types of personal information that should not be given out on the Internet.

Resources Needed:

Computer lab or one computer per group/pair

One printed copy of the question activity located in extra material

File ~Kids Copyright Laws (PowerPoint Show)

Microsoft PowerPoint, Internet Access, pencil for each student

Links to Prior Knowledge:

How to use a mouse or touch pad

Ability to read basic informational text

Procedures:

1. List the following question on the chalkboard: *Is it ok for you to download your favorite song off of the internet without paying for it?*
2. Think-Pair-Share: Students think about the question for 2 minutes. Then they pair up with their neighbor to discuss their thoughts. Students then share their answers out loud.
3. **Say:** *Is not OK to download your favorite song without paying for it because if you do, then you would be violating a copyright law. Today we will learn more about what the copyright law means.*
4. Students should go to the handout activity. Kids Copyright Laws (in extra materials)
5. Have students read or read aloud as a class Activity
6. Discuss to make sure students understand expectations.
7. ****you might want students to save under a certain file. If you are running out of time you may also have the students complete activity on paper/worksheet instead of on the computer.****
8. Be sure to include what you know about copyright laws in your response.
9. Print out final responses.

Assessment:

Class discussion of understanding of copyright laws, completion of the handout activity and discuss possible solutions. Share exemplary responses with class.

Follow-Up: Students should continue to be aware of copyright laws when they are using the internet and other sources.

Accommodations:

Students may work independently or in pairs to complete the activity.

Verbatim reading of handout activity

Early finishers may play the “Locate the State” game.

Modified handout activity

Challenge:

Students can create a document (PowerPoint) that explains the importance of copyright laws.

Relate copyright laws to another experience. Draw an analogy (stealing, copying ideas, etc.) to relate the issues of copyrighting to an issue that would help people understand the importance of the laws.

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm.

Kids Copyright Laws

Name_____ Date_____

Copyright Laws for Kids

Mrs. Smith assigned a huge project! She really loaded on the work for this assignment, constantly reminding us, "I am only preparing you *for* middle school boys and girls". It seemed like everyone in the class had a lot going on with the beginning of baseball season and lacrosse season. Many students were even completing a science project to enter into the science fair at the end of the month. No matter how hard we tried to convince Mrs. Smith to change the due date she would not budge. "You must learn how to meet a deadline", said Mrs. Smith as she waved her pointy finger at us.

Needless to say we were all feeling the pressure of this project. I worked hard for two weeks straight. I spent about one hour each night on researching the topic carefully. Especially paying close attention to plagiarism and copyright laws. When I finished the project I felt so proud of my work! Since it was my own work! Mrs. Smith was right she is just preparing us to become responsible students so we can be successful in middle school next year.

When I arrived at school the day the project was due I smiled from ear to ear! I felt good about my project and I knew I deserved an A plus. As my friend Ryan walked into the room he had his project hidden in a bag. I could tell he wasn't very confident about his project. When I asked him basic questions about the information on his poster board he stumbled over words and was unsure about the information. I also noticed a lot of his information was directly taken from the internet because I recognized the style of the text.

I was really unsure as to what to do. Should I tell Mrs. Smith? I worked really hard on my project and I don't think Ryan put the

effort that I did into the project. Would it be fair if Ryan got the same grade as I did?

Explain what you would do if you were in my shoes. Would you tell the teacher? Or would you keep this information to yourself? Be sure to include what you know about copyright laws in your response. Type your response in the box below. When you are finished typing your response **SAVE** your document in your directory. Then print out to receive full credit.

Editing and Revisions Made Easy

Subject: Language Arts

Grade: 5

Title: Editing and Revision Made Easy

Length of Unit: Ongoing

Materials Needed:

computers

large TV monitor

printer

Word Processing Program

Common Core State Standards:

CCSS.ELA-Literacy.W.5.5 With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

Michigan Technology Standards:

3-5.TC.2 Define ways technology has changed life at school and at home.

3-5.TC.3 Understand and discuss how assistive technologies can benefit all individuals.

Prior Knowledge:

- Students must know basic writing mechanics and correct grammar usage.
- Students must have basic computer skills including that of maneuvering the cursor.

Cue Set:

"Everyday we are going to look at mistakes made in written sentences. Our goal is to find as many mistakes as possible. We are going to correct these mistakes using a tool for the 21st Century - the computer."

Best Shot Instruction:

- The teacher defines editing for students as reviewing work and looking for errors in mechanics and grammar.
- The teacher defines revising as reviewing written work and adding or deleting information to enhance the written material. Students are told to ask: "Does it

make sense?" (Note ñ The teacher should introduce the revising procedure after students have a clear understanding of the editing procedure.)

- The teacher shows and explains how the computer can be used to make the editing and revising stages of the writing process easier.
- The students write correct sentences at their desks. Sentences are displayed on the TV monitor.
- Individual students are called to the computer to correct mistakes. The teacher instructs students in the use of the computer for quick error correction.
- As each mistake is corrected, the teacher asks the members of the class if they caught the mistake (informal assessment needed ñ thumbs up/thumbs down).
- For revision, students create new sentences by changing the old one (i.e. adding adjectives, deleting words, rewriting the sentence, etc.).
- Individuals demonstrate on the computer how they revised the writing.

Reteaching and Enrichment:

- The teacher evaluates students' responses during the informal assessment to see if the material needs to be reviewed (i.e. commas, punctuation, etc.). Mini lessons are taught or planned for the future to ensure student success.
- For enrichment, students create sentences to be used by the class.

Review and Closure:

Formative

1. The teacher observes the student's participation in the class corrections.
2. The teacher observes the individual's use of the computer for editing.
3. The teacher monitors the student's word processing skills in the computer lab.

Summative

1. The student's daily score for correcting sentences is recorded.
2. The student's weekly score for the revising sentences is recorded. (Special notice is taken of how these sentences are improved.)
3. A weekly quiz, covering the different mistakes presented in the computer lab during the week, is given.
4. An additional evaluation of word processing skills can be included.

Wise, J. & Sherizan, E. (2012) *M & M Math Lesson Design*. East Detroit Public Schools. Retrieved on January 20, 2013 from <http://www.macomb.k12.mi.us/eastdet/Plans/PlanList.htm>

Lesson 8

All About Me

This lesson is an introduction to software programs.

Suggested Time: Two 30-45 minute sessions

Objectives:

- Students will use their student identification number and password to log into their computers.
- Using Microsoft Word, students will complete an autobiographical worksheet.
- On day one: Students will access information from the Internet and save in their personal directory.
- On day two: Students will locate, open, edit, and save their autobiographical document.

Michigan Technology Standards:

3-5.TC.4 Demonstrate proper care in the use of computer hardware, software, peripherals, and storage media.

3-5.RI.1 Identify search strategies for locating information with support from teachers or library media specialists.

3-5.TC.5 Know how to exchange files with other students using technology.

Common Core State Standards:

CCSS.ELA.Literacy.SL.5.4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Resources Needed:

- LCD Projector in computer lab
- Microsoft Word
- 1:1 student access to a computer in the lab
- (Extension) Microsoft Paint

Links to Prior Knowledge:

- How to turn a computer on and off.
- Using a word processor to enter basic text.

Procedures:

Lesson 1:

- Discuss how file cabinets are used in school (to store important documents). Ask how these documents can be stored so that you can find them at a later time.
- Complete the first slide show as the students follow the directions to log in and access the All About Me document

- As each slide is presented, walk through the lab and check that all students are on task before going to the next slide.

Lesson 2:

- Review the use of a file cabinet. Stress that their “drawer” is locked with their special user number and password. It should never be shared.

- Complete the second slide show as the students retrieve their save All About Me document.

Assessment: Students will successfully save and find their work in their personal My Documents.

Follow-Up: Encourage the students to continue to save their work to My Documents

Accommodations:

Any text to speech technology (available free on iPad)

Partner Work/Small Group help

Challenge Activities:

Early finishers could write a paragraph to explain their favorite. They could also add another paragraph to explain more about themselves.

If students have advanced skills, they could add clip art to their document.

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne’s County Public Schools.

Retrieved on January 15, 2013 from [http://www.qacps.k12.md.us/comtek/K-](http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm)

[5_Lessons/Book_5/teacher_plans_grade_5.htm](http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm).

All About Me

All About Me Document

All About Me

My Name:

My Age:

My Teacher:

My School:

I Live At:

My Phone Number Is:

My Favorite:

M & M Math

Subject Area: Math

Grade Level: K-5

Course: Graphing

Title: M&M Math

Length of Unit: 2 Class Periods

Materials Needed:

Power Macintosh G3 computer (equipped with video/audio projection)

large TV monitor or projector

printer

data table

The Graph Club (software)

M&M candy

sorting mats

Common Core State Standards:

CCSS.Math.Content.5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

Michigan Technology Standards:

3-5.RI.2 Use digital tools to find, organize, analyze, synthesize, and evaluate information.

3-5.CT.2 Use information and communication technology tools to collect, organize, and evaluate information to assist with solving problems.

Prior Knowledge:

- Students can count, sort, and compare data.
- Students can identify colors.
- Students can work with other students in small groups (cooperative learning).
- Students possess basic computer skills.

Cue Set:

- The teacher holds a bag of M&Ms and tells students, “Today we are going to sort and graph M&M candies.”
- The teacher poses the following questions:

“How many M&Ms do you predict are in the bag?”

“What color M&Ms will you see the most?”

Best Shot Instruction:

- The teacher creates the prediction chart using the Cue Set questions as s/he demonstrates graphing.
- Using a sorting mat, the students sort a bag of M&M candies according to color. They may work individually, with a partner, or in small groups with teacher guidance.
- The students count M&M candies. They compare the number to their prediction.
- The students count the number of each color in a set.
- The students create tally charts.
- The students use a graphing program to create the graph.

Reteaching and Enrichment:

- The students create different types of graphs based on the same data.
- The students create new graphs with new data.
- The students choose two graphs and write statements or paragraphs comparing the two.

Review and Closure:

- Pairs of students create a survey, collect data, and use a free graph program, present the results to the class.
- The students write paragraphs describing their interpretations of the data.

Assessment:

A. Formative Assessment

1. The teacher observes student interaction with the free graphing program.
 - a. The teacher observes that students can identify the components of a graph (labels, titles, color codes).
 - b. The teacher observes students using higher levels of thinking while making comparisons and decisions.
2. The teacher observes the students during classroom discussions.

B. Summative Assessment

1. The student successfully completes a printed graph that matches the data.
2. The student achieves mastery (80% or better) using the following rubric:

- a. titles graph and includes own name
- b. labels data horizontally and vertically
- c. selects a maximum scale
- d. chooses the correct representation with symbols
- e. writes a description of the graphing results
- f. selects a graph type to match the data (circle, bar, pictograph, line)

Wise, J. & Sherizan, E. (2012) *M & M Math Lesson Design*. East Detroit Public Schools.
Retrieved on January 20, 2013 from
<http://www.macomb.k12.mi.us/eastdet/Plans/PlanList.htm>

Lesson 10

U.S. Weather Chart

Students use the Internet or a newspaper to monitor the temperature cross the USA for a week.

Suggested Time: 45 minutes, may take more than one lesson

Objectives; Student will organize information using a spread sheet and then transfer the data to a graph.

Common Core State Standards:

CCSS.Math.Content.5.MD.B.2 Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems.

Michigan Technology Standards:

3-5.CT.1 Use digital resources to access information that can assist in making informed decisions about everyday matters.

3-5.CT.3 Use digital resources to identify and investigate a state, national, or global issue.

Resources Needed:

Data of a week's daily temperatures use www.weather.com

Access to Internet and Excel program

Links to Prior Knowledge:

Students should be familiar with entering data they have collected

Making Charts

****The class monitors daily temperatures for one week in the cities on the template using the Internet or the daily newspaper.

Procedures:

1. Students open the [USWeatherChart](#) template and enter the data.
2. To copy the formula for the entire spreadsheet “**right click**” over the 1st averaged cell, choose **Copy**, and drag down to the last cell in the column.

3. Then students are going to create a graph with their temperature data.
4. The students will highlight all the information in cells from B7-H15.
5. Next the students will click on the graph button on the top of the toolbar. Here they will have to organize and title their information.
6. First, they will select the bar graph format first and then can go back and choose different graphs to explore.
7. After they choose the bar graph, press “**Next.**” Here they will be given the data range. Then click at the top, next to “Data Range” on “**Series.**” For each series they will type in the days of the week. Then click on “**Next.**”
8. Here they will label the chart: U.S. Weather, the X-axis: Cities, and Y-axis: Temperature.
9. Then click on **Finish** and the graph will appear on the sheet.
10. The students can left click on the graph to move it under their table.

Assessment:

Check to see that the bar graph has the days of the week, title with capital letters, X axis labeled as Cities, and the Y labeled as Temperature.

Follow-Up:

The students can go back and choose different types of graphs to display their information on. They could also research their own information to create a spreadsheet and graph on their own.

Extended: Teacher may extend the lesson the following week by going on The Weather Channel (www.weather.com). There are several activities for students to work on. Educational and fun.

Students can create another chart for another city.

Answer this question: What city would you like to live in and why?

Accommodations:

Give step by step, written directions for creating the graph.

The class could create one graph to be displayed in the classroom.

Students work in partners.

Teacher could have made a ready made graph and have the students cut and paste to organize correctly.

Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm.

References

- Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm.
- Wise, J. & Sherizan, E. (2012) *M & M Math Lesson Design*. East Detroit Public Schools. Retrieved on January 20, 2013 from <http://www.macomb.k12.mi.us/eastdet/Plans/PlanList.htm>

CHAPTER 5

LIMITATIONS, RECOMMENDATIONS, REFLECTIONS AND CONCLUSION

This project has been a great review of designing lessons that meets criteria in multiple standards. During my time as a teacher, many of my lessons have looked similar from year to year. Including multiple standards such as the Michigan Educational Technology Standards and the Common Core Content Standards increases creative thinking, fresh ideas, and a more holistic thought process. The time spent researching the two sets of standards, where to find valuable information, and helping other teachers provides a great sense of pride and positive thoughts moving forward in my career.

A limitation of this project may be the unwillingness of upper elementary teachers to try the lessons provided. The study relies on the overall attitude of teachers to change and include technology in their regular lessons. Overall computer knowledge and comfort level using a computer may also be a limitation of the project.

Recommendations to this project would be pairing an inexperienced technology integration teacher to one who has had experience and success. The teacher could act as a mentor and track the success throughout the school year. It is also a recommendation that no more than three integration lessons are developed and introduced by a teacher each year. Slowly building a set of integrated lessons is suggested.

Teachers need to look at the world and decide how they can make the greatest impact on students' lives. It is no secret that technology is included increasingly in our

daily lives. Also, being successful in school provides us a better chance of obtaining a life that benefits society. Teachers can have a major impact on lives at the fifth grade level by teaching best practice strategies that include the integration of the Michigan Educational Technology Standards and the Common Core Content Standards.

References

- Alobiedat, A. (2009). *Comparing pre-service technology standards with technology skills of special educators in southwestern michigan*. International Journal Of Instructional Media, 32(4), 385-395. Retrieved on May 10, 2014 from <http://0-web.a.ebscohost.com.libcat.ferris.edu/ehost/pdfviewer/pdfviewer?sid=e12b8633-8c9b-42ec-9cce-26b01389edb8%40sessionmgr4002&vid=6&hid=4204>
- Ash, K. (2012). *Common core guide updates tech needs*. Education Week. Retrieved on January 3, 2012 from http://0go.galegroup.com.libcat.ferris.edu/ps/retrieve.do?sgHitCountType=None&sort=DASORT&inPS=true&prodId=AONE&userGroupName=lom_ferrissu&tabID=T003&searchId=R1&resultListType=RESULT_LIST&contentSegment=&searchType=AdvancedSearchForm¤tPosition=2&contentSet=GALE%7CA312888334&&docId=GALE|A312888334&docType=GALE&role=&docLevel=FULLTEXT
- Barnum, S. et al. (2009) *Teacher Plans: Grade 5*. Queen Anne's County Public Schools. Retrieved on January 15, 2013 from http://www.qacps.k12.md.us/comtek/K-5_Lessons/Book_5/teacher_plans_grade_5.htm.
- Barton, Paul, E (2002). *Raising achievement and reducing gaps: Reporting progress toward goals for academic achievement in mathematics*. Retrieved on February 1, 2013 from http://www.eric.ed.gov/ERICWebPortal/search/recordDetails.jsp?searchtype=basic&pageSize=10&ERICExtSearch_SearchValue_0=charlottesville+education+summit&eric_displayStartCount=1&ERICExtSearch_SearchType_0=kw&_pageLabel=RecordDetails&objectId=0900019b800dcf72&accno=ED462296&_nfls=false

- Bebell, D. & Kay, R. (2010). One to one computing: A summary of the quantitative results from the Berkshirewireless learning initiative. *Journal of Technology, Learning, and Assessment*, 9, 2, 2–60 [Online journal]. Retrieved from <http://ejournals.bc.edu/ojs/index.php/jtla/article/view/1607>
- Canul, Yvonne (2005). *Introduction to third grade level content expectations*. Michigan Department of Education. Retrieved on November 17, 2012 from http://www.michigan.gov/documents/3rd_Math-Intro_Ltrweb_135031_7.pdf
- Cavanagh, S. (2013, January 16). *Districts look to E-rate program to help with common core tech costs; Federal program does not meet all technology demands*. Education Week, 32(17), 9. Retrieved from http://0go.galegroup.com/libcat.ferris.edu/ps/i.do?id=GALE%7CA316609285&v=2.1&u=lom_ferrissu&it=r&p=AONE&sw=w
- Clausen, J., Britten, J. & Ring, G. (2008). Envisioning effective laptop initiatives. *Learning & Leading with Technology*, 36, 2, 18–22. Retrieved January 14, 2013, from <http://www.iste.org/learn/publications/learning-and-leading.aspx>
- Cuban, L. (2006). Commentary: The laptop revolution has no clothes. *Education Week*, p. 29. Retrieved January 14, 2013, from <http://www.edweek.org/ew/articles/2006/10/18/08cuban.h26.html?qs=>
- Ertmer, P. A. (2012). *Teacher beliefs and technology integration practices: A critical relationship*. Computers & Education, 59(2), 423-435. Retrieved from <http://search.proquest.com/docview/1023527516?accountid=10825>

- Grey, L., Thomas, N., & Lewis, L. (2010). *Teachers use of educational technology in US public schools: 2009*. (United States, Department of Education). Retrieved July 31, 2012, from <http://nces.ed.gov/pubs2010/2010040.pdf>
- Hamilton, B. (2007) *It's elementary!integrating technology in the primary grades*. International Society for Technology in Education. Retrieved February 2013 from <http://www.iste.org/docs/excerpts/ITSELE-excerpt.pdf>
- Kopietz, C., Wall, J, & Taylor, N. (2012). *Creating supply and demand mismatch leaves STEM jobs unfilled*. Stemwire. Retrieved January 17, 2013 from <http://stemwire.org/2012/10/03/ supply-demand-mismatch-leaves-stem-jobs-unfilled/>
- McGuinn, P. (2011, November 28). Stimulating reform: Race To The Top, competitive grants and the Obama education agenda. *FLITE Database Login*. Retrieved November 17, 2012, from <http://0-epx.sagepub.com.libcat.ferris.edu/content/26/1/136.full.pdf.html>
- McShane, M. Q. (2012, September). *Turning the tides: President Obama and education reform*. *Education Outlook*. no.6. Retrieved December 17, 2012, from <http://0-search.proquest.com.libcat.ferris.edu/eric/docview/1140142599/13C4F5C565264A58EF0/6?accountid=10825>
- Miranda, H. P., & Russell, M. (2012). *Understanding factors associated with teacher-directed student use of technology in elementary classrooms: A structural equation modeling approach*. *British Journal of Educational Technology*, 43(4), 652-666. Retrieved from <http://search.proquest.com/docview/1031152049?accountid=10825>

Niess, M. L. (2005, July). Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge. *Teaching and Teacher Education*. Retrieved July 31, 2012, from http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true

PETERSON, P., & KAPLAN, P. (2014). Despite Common Core, States Still Lack Common Standards. *Education Next*, 13(4), 44-49. Downloaded from http://0-go.galegroup.com.libcat.ferris.edu/ps/i.do?ty=as&v=2.1&u=lom_ferrissu&it=search&s=RELEVANCE&p=ITOF&qt=VO~13~~SP~44~~IU~4~~PU~Education%20Next&lm=&sw=w

Rust, T. (2012). *Common core standards*. *Technology & Engineering Teacher*, 72(3), 32-36. http://0-go.galegroup.com.libcat.ferris.edu/ps/retrieve.do?sgHitCountType=None&sort=DA-SORT&inPS=true&prodId=AONE&userGroupName=lom_ferrissu&tabID=T002&searchId=R1&resultListType=RESULT_LIST&contentSegment=&searchType=AdvancedSearchForm¤tPosition=1&contentSet=GALE%7CA307918554&&docId=GALE|A307918554&docType=GALE&role=

Schmidt, W., & Houang, R. (2012). *Curricular coherence and the common core state standards for mathematics*. *Educational Researcher*, 41(8), 294-308. <http://0-web.ebscohost.com.libcat.ferris.edu/ehost/detail?vid=6&sid=76c0cb91-6d9b-42bd-bf77-451c00968b37%40sessionmgr113&hid=113&bdata=JnNpdGU9ZWZwhvc3QtbGl2ZQ%3d%3d#db=eax&AN=83002309>

- The National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform* A Report to the Nation and the Secretary of Education United States Department of Education. Retrieved on January 13, 2013 from http://datacenter.spps.org/uploads/SOTW_A_Nation_at_Risk_1983.pdf
- U.S. House, Department of Education. (1994). *Goals 2000: Educate America Act* [H.R. Doc. HR 1804 from 103rd Cong., 1st sess.]. Retrieved December 12, 2012, from <http://www2.ed.gov/legislation/GOALS2000/TheAct/index.html>
- Viviano, T. (2012). *What 21st century leadership in career and technical education should look like*. Retrieved from <http://search.proquest.com/docview/1011399035?accountid=10825>
- Watt, M. G. (2011). *The common core state standards initiative: An overview*. Retrieved February 9, 2013, from <http://www.eric.ed.gov/PDFS/ED522271.pdf>
- Wells, J. & Lewis, L. (2006). *Internet access in U.S. public schools and classrooms: 1994–2005*. (NCES 2007-020). U.S. Department of Education .Washington, DC: National Center for Education Statistics. Retrieved January 14, 2013, from <http://nces.ed.gov/pubs2007/2007020.pdf>
- Wise, J. & Sherizan, E. (2012) *M & M Math Lesson Design*. East Detroit Public Schools. Retrieved on January 20, 2013 from <http://www.macomb.k12.mi.us/eastdet/Plans/PlanList.htm>
- Zhao, Y. & Bryant, F.L. (2005). *Can teacher technology integration training alone lead to high levels of technology integration? A qualitative look at teachers'*

technology integration after state mandated technology training electronic.

Journal for the Integration of Technology in Education, Vol. 5 Retrieved on

December 15, 2012 from [http://ejite.isu.edu/Volume5 /Zhao.pdf](http://ejite.isu.edu/Volume5/Zhao.pdf)