USING COLLABORATIVE TESTING TO REDUCE TEST ANXIETY IN ELEMENTARY AND MIDDLE SCHOOL STUDENTS

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Abstract

Throughout this action research project report, the teacher-researchers explored the problem of test anxiety among students. The purpose of this project was to alleviate test anxiety among students with various interventions in grades five through seven in the subject areas of social studies, science, and language arts. There were 66 student participants in this study which occurred between August 20, 2012 and December 21, 2012.

Students exhibited behaviors to illustrate test anxiety such as sweating, tapping, and poor achievement. The three tools used to document further evidence of the problem of include a student survey, parent survey, and teacher survey. The student survey affirmed that students felt negatively about taking tests in school and were uncomfortable taking tests in certain subject areas. The parents of the above-mentioned students also noted they had witnessed their children experiencing such feelings when faced with a test in school. Additionally, the teachers surveyed expressed noticing behaviors of students that may be related to test anxiety such as tapping, refusal to work, and nervousness.

The teacher-researchers implemented various interventions in order to address the problem area. These interventions included teaching test-taking strategies, collaborative testing, and differentiated tests. Students were taught how to best take a test by using strategies that included, but were not limited to highlighting important words in the question, eliminating wrong answers, and planning extended responses. Pretests were given at the start of each unit to show the teacher-researchers how much or little students knew about the topic. Through collaborative testing, students first took a test individually. The following day, students were put into groups based on their pre-determined knowledge of the subject or ability to illustrate a skill. In groups, students were able to revisit their test and work together in order to change or affirm their answers. These tests were also used to group students during collaborative testing as well as design differentiated tests. The teacher-researchers created three levels of tests per unit in order to best assess the students at their levels, but still demanded students to demonstrate what they had learned.

By the end of the study, the teacher-researchers found that the students experienced a positive change in the way they viewed taking tests in school. More students reported feeling good or prepared for tests after being a part of the interventions. This information was especially pleasing because the students also stated that the way they prepared for tests did not change; thus confirming that the interventions implemented did help reduce the students' test anxiety.

Chapter 1

Problem Statement and Context

General Statement of the Problem

Three teacher-researchers teaching sixth- and seventh-grade language arts in two middle schools and fifth-grade science and social studies in an elementary school noticed anxiety in their students before, during, and after testing situations. Students were seen to misbehave, have poor test scores, and show physical signs of anxiety in the classrooms. The methods used to document evidence that this problem existed in the classrooms were parent, student, and teacher surveys as well as discipline data from administrators.

Immediate Context of the Problem

Three teacher researchers from three different sites conducted this action research project. Sites A and C were suburban middle schools with two teacher researchers at the sixth, seventh, and eighth grade levels. One teacher researcher was at Site B teaching fifth grade at an elementary building. Unless otherwise noted, the information in this section was retrieved from the respective 2011 Illinois School Report Card and the 2011 District Report Card.

Site A.

Site A was a public middle school in a suburb North of Chicago. The total enrollment of Site A was 681 students. Of those students, 52.8% (n=360) were male and 47.2% (n=321) were female. See Table 1 for the rest of the student demographic data.

Table 1

Ethnicity of Students by Percentage

	Caucasian	African American	Asian	Hispanic
School	17.3	8.0	3.0	70.5
District	20.0	6.8	1.8	69.8
State	51.4	18.3	4.1	23.0

The enrollment included students from sixth to eighth grade. The district enrollment was 7,127 students ranging from early childhood education to 12th grade. The low-income rate at Site A was 74.8% compared to 63.8% for the district. Students indentified with Limited English Proficiency at Site A were 15.0% with 25.2% indentified the same at the district level, which coincides with the large Hispanic population in both the school and district (Table 1). The mobility rate at Site A was 28.5% compared to 16.3% for the district. Attendance rates in the 2010-2011 school for the district and Site A were 94.2% and 95.6% respectively with chronic truancy rates of 4.6% and 0.9% respectively.

Of the 46 teachers employed at Site A, 67.4% (n=31) were female and 32.6% (n=13) were male (Site A Middle School, n. d.). The following information was unavailable for Site A as an individual building. In the district, 94.3% of the teachers were Caucasian. The district's average yearly teacher salary was $65,900. In the 2010-2011 school year, 62.4% of teachers had their Master's degree or above. On average, teachers in this district had 12.4 years of experience. The ratio of students to teachers at Site A was 21.4:1.

The academic program at Site A consisted of the core subjects of science, math, language arts, and social studies. Other exploratory subject areas included physical education, art, music, Spanish, life skills, geometry, world language, and journalism. Other services offered at Site A were speech, ESL, special education, guidance counseling, social work, hearing itinerant

services, and occupational therapy. The amount of time students are instructed in each subject area is described below in Table 2. Students at Site A who tested below standards by two or more grade levels in reading or math were placed in intervention classrooms in order to receive more remediation in those areas. Some of those students, because of their intervention minutes, received less or no time in social studies or science.

Table 2

Time Devoted to Teaching Core Subjects (Minutes Per Day)

Grade	6	7	8
Language Arts	75	50	50
Mathematics	75	50	50
Science	50	50	50
Social Studies	50	50	50

The students at Site A took the Illinois Standards Achievement Test every year. Students were tested in reading and mathematics in sixth through eighth grade while seventh graders were additionally tested in science. The small majority of students at Site A throughout all three grade levels reported to be meeting or exceeding the Illinois Learning Standards. However, each grade level scored far below the state in every subject area tested, as noted in Table 3.

Table 3

Percent of Students Meeting or Exceeding on ISAT

	6th Grade			7th Grade			8th Grade		
Subject	Site	State	Differential	Site	State	Differential	Site	State	Differential
Reading	71.4	84.1	-12.7	65.6	78.8	- 13.2	69.5	85	- 15.5
Mathematics	73.6	84	-10.4	74.7	84.3	- 9.6	76.7	86	-9.3
Science	_	_	_	71.5	81.9	- 10.4	_	_	_

Site A had one principal, two assistant principals, three full-time secretaries, and a nurse. Five custodians worked in the building; two of them were available during the day while the other three worked after school hours. A private company, with their own hired staff; worked in the kitchen during lunch periods.

The faculty and staff of Site A consisted of 46 certified teachers and 16 non-certified staff members. Within the 46 certified teachers, there were five English as a Second Language teachers, five physical education teachers, one art and one music teacher. Aides were placed in classrooms based on students' Individualized Education Program and demands of ESL needs. Special Education teachers were also used as intervention facilitators as well as co-teachers within the general education classrooms for all three grade levels. Within the building there was a guidance counselor, social worker, psychologist, and a behavior interventionist. There was also an occupational therapist and speech pathologist that came to the building as needed while rotating throughout all of the district buildings. There were many after school clubs and athletics programs offered to students, however, athletic teams required a small fee to join. Parent involvement at Site A was minimal. Site A had a Parent Teacher Organization that consisted of three teachers, two parents, and the building principal. Despite a weak parent volunteer program, there were other opportunities for parent involvement as well as fundraising events. Site A was a Positive Behavior Intervention Support school and constantly provided students with activities to build their character and reward their achievements.

Site A was refurbished and reopened in the Fall of 2007 in order to be updated. The building included three floors, one large gymnasium, a cafeteria, a multi-purpose room, a band room, computer lab, and a library. There were 30 computers and a projector in the computer lab with two additional carts, each with 30 laptops and a wireless internet router. Every classroom

was equipped with an ELMO, ceiling mounted projector, intercom system, phone, two or more student computers, and a laptop for each teacher. In the hallway and the gymnasium there were murals painted on the walls. The hallways were lined with combination lockers for the students to store possessions. Outside of the building there was a soccer field and the high school outdoor athletic facilities, such as a softball field and track, which were within walking distance. All staff and district information about meetings or announcements were sent through email. Attendance was taken at the beginning of every class period on the computers. Grade books, progress reports, report cards, and student information were all completed on the computer as well.

The mission statement for the district of Site A is written as follows: Ensure the highest achievement for every student in meeting academic expectations that exceed standards, learning 21st century skills, and developing social and cultural proficiency. Promote life-long learning, ethical leadership, and active citizenship in concert with every member of our community.

Site B.

Site B was a public elementary school located within northern McHenry County. It was a rural community, located six miles from Illinois Route 12.

Table 4

Ethnic Background by Percentage

	Caucasian	African American	Hispanic	Asian
School	81.0	0.2	15.1	1.6
District	78.7	0.5	16.0	1.5
State	51.4	18.3	23.0	4.1

Site B had a total enrollment of 516 students, which included students from fourth and fifth grades with the district enrollment of 4,897 students ranging from kindergarten through

eighth grade. The low-income rates at Site B were 32.0% compared to 25.0% for the district. At Site B the students identified with Limited English Proficiency were 5.6% and the district level was 10.3%. The mobility rate at Site B was 16.9% compared to 13.9% for the district. The truancy rate for Site B was 0.2% compared to the district, which was also 0.2%. Site B had an attendance rate of 95.4% while the district had an attendance rate of 94.8%.

The number of full-time teachers at Site B was not reported on the School Report Card. According to the data retrieved from the school principal, the total number of staff employed at Site B was 32 for the 2009-2010 school year. Females made up 87.5% of the staff, while 12.5% of the staff was male. 100% of the staff was Caucasian. The average teaching experience for the school was 12 years, with an average salary of $56,305. Teachers with a bachelor's degree made up 25% of the school, while those with a master's degree or above made up 75%. The ratio of teachers to students was 23.2:1, with an average class size of 22.1 students in fifth grade (Building Principal, personal communication, December 6, 2011).

As reported in the School Report Card, the district employed 286 teachers, with a break down of 11.3% males, and 88.7% females. 96.0% of the teachers were Caucasian, 3.7% were Hispanic, and 0.3% were African American. The average teaching experience of the district was 12.0 years, with an average salary of $56,305. Teachers with a bachelor's degree made up 46.5% of the district while those with a Master's degree or above made up 53.5%. The ratio of teachers to students for the district was 19.4:1 with an average class size of 24.5 students in fifth grade. This information for Site B alone was unavailable.

The academic program at Site B consisted of core subjects including reading, mathematics, writing, social studies, and science (refer to Table 5 below). Other subjects taught were art, physical education, music, learning center, and keyboarding. Services provided at Site

B included special education, ESL, speech, social work, occupational therapy, and physical therapy. Students who tested below grade level in both reading and mathematics were placed in daily interventions to receive more specialized instruction. Those students not in an intervention group were placed in classrooms for enrichment activities. The teacher researchers would like to note that the Response to Intervention program was a school-wide time set aside at the end of every school day, to utilize the involvement of all staff members, from teacher assistant to principal.

Table 5

Time Devoted to Teaching Core Subjects (Minutes Per Day)

Grade	4	5
Mathematics	60	60
Reading	90	90
RTI	40	40
Social Studies	30	30
Science	30	30
Writing	40	40

The students at Site B took the Illinois Standard Achievement Test. Students were tested in reading and mathematics, with fourth graders additionally tested in science. While a large majority of the student population met or exceeded state standards, there was still a significant percentage of the student population who were below state standards. While the school did not make Annual Yearly Progress in reading, it did score higher than the state in both fourth (+1.5) and fifth (+7.4) grade (Table 6).

Table 6

Percent of Students Meeting or Exceeding on ISAT

	4th Grade			5th Grade		
Subject	Site B	State	Differential	Site B	State	Differential
Reading	76.2	74.7	+ 1.5	83.8	76.4	+7.4
Mathematics	89.6	87.7	+1.9	89.0	84.0	+5.0
Science	84.0	79.4	+4.6	-	-	-

Site B had a principal, assistant principal, two full-time secretaries, a full-time nurse, and technology support from the district central office. One custodian was available during the day for general maintenance responsibilities, with two full-time night custodians who were responsible for general cleaning and maintenance. The cafeteria was run by four full-time kitchen staff for student breakfast and lunch.

The faculty and staff consisted of 32 certified teachers and 11 non-certified staff. Included in the 32 certified teachers were: two reading specialists; one English as a Second Language teacher; one bilingual teacher and an art, music, physical education, keyboarding and learning center director. There were seven instructional assistants who were placed in classrooms based on criteria of students with Individualized Education Plans. The building also employed one full-time translator. Special Education served both fourth and fifth grade with three learning resource teachers, two self-contained teachers, one social worker, one psychologist, one full-time and one part-time speech therapist. Other services provided within the district were occupational and physical therapists, and vision and hearing itinerants. Band was offered after school for a fee to fifth grade students.

Site B had a strong Parent Teacher Organization (PTO), which provided several fundraising opportunities throughout the school year. Funds raised were used to support monthly assemblies

that supported the character development program and student learning, as well as the fifth grade field trip to the Challenger Learning Center. The school used the Positive Behavior Intervention Support (PBIS) program. Under PBIS guidelines, students were rewarded for positive character. There were tiered interventions for those students who struggled with classroom behavior, including a check-in check-out daily behavior sheet. Positive rewards were given monthly to classroom students of the month and whole school reward assemblies.

Site B was established in 1956. It was a brick bi-level building that had previously been used as a middle school. There were three wings that housed nine regular education and two self -contained classrooms downstairs, as well as a music room, art room, learning center and a large cafeteria. Nine regular education classrooms were located upstairs. A mobile classroom was located in the rear of the building that housed a computer lab with 30 personal computers, a learning resource room and bilingual fourth and fifth grade classrooms. The hallways were lined with combination lockers for the students to store their possessions. Student's work was displayed in hallways on bulletin boards and in display cases that were changed monthly. Each classroom was equipped with three computers and a television with a VCR. Site B had a large playground with two basketball hoops and game areas painted on the blacktop. There was a large grassy field and two baseball fields. School attendance and report cards were completed on the classroom computer.

Local Context of the Problem

The researched schools were located north of Chicago within 10 miles of each other. Site A was in Lake County while Site B was in McHenry County. Each school was located in a residential area with a wide variety of businesses nearby.

Sites A.

The district boundaries of Site A included multiple neighboring towns. The teacher researchers would like to draw the reader's attention to the fact that two of these towns were split between two different school districts. Therefore, the data for Site A has been collapsed based on the many towns the feed into the district. According to the U.S. Census Bureau (2010), the total population in 2010 of the district's towns was estimated at 53,696 with 50.4% being female and 49.6% being male. The age distribution was 6.4% under the age of five, 31.7% 18 years or older, and 8.0% over the age of 65. The ethnic make-up of Site A is shown in Table 7 below.

Table 7

Ethnicities of Site A Community by Percent

Caucasian	African American	American Indian	Hispanic	Asian
69.5	4.3	1.1	39.2	6.1

The median household income was $59,154. The number of people in the community considered to be living below the poverty level represented 12.7% of the total population. Of the total population ages 25 and older, 78.5% obtained a high school graduate degree or higher. Only 20.3% of people 25 years or older held a bachelor's degree or higher (U.S. Census Bureau, 2010).

There were 16,226 total households in the school area. The average household size was 3.1 with an average family size of 3.68. The unemployment rate for the Sites A and C community was 18.8%. The majority of the working population ages 16 and over were employed in the categories listed below in Table 8 (U.S. Census Bureau, 2010).

Table 8

Types of Occupations by Percentage

Management	Professionals	Service	Sales	Construction	Production and Transportation
22.8	11.7	15.0	29.8	12.5	19.6

The crime rate in the community (205.8) for 2010 was notably lower than the U.S. average (319.1). To see crime break down for Sites A and C refer to Table 9 below noting that the majority of crimes were thefts (n=552) as cited in City-Data.com (n.d) Site A.

Table 9

Community Crime Break Down (n=721)

Crime	Frequency
Murders	0
Rapes	15
Robberies	12
Assaults	37
Burglaries	91
Thefts	552
Auto theft	7
Arson	7

The community surrounding Sites A and C was originally a place for people of Chicago to vacation on weekends. In 1868, a Methodist Episcopal Church was established to hold camps for worshippers. The camp drew up to 8,000 people per day. Due to its popularity, many summer cottages were built throughout the end of the 1800s. As more visitors migrated there for summers, more homes and hotels went up. Because of the nature of the town the community had very few people who lived there year round. This may be a reason many of the older homes in the area were very small. However, between 1930 and 1970, the town itself, as well as many of the buildings, fell apart due to poor economic health. By 1980, the town was awarded a HUD

grant of $330,000 in order to improve and restore the homes in the community as cited in Sites A Village (n. d.).

In recent years, new businesses have opened in the area to accommodate the growing population. The community now has a park district with many recreational options for children and adults. There was also a pool open to the public that allows residents to pay per visit or purchase a pass for the summer. During the winter months, the park district opens up space to be used for sledding and an outdoor ice skating rink. The park district has built various parks throughout each subdivision and continues to maintain them.

The district included an early childhood center, five elementary schools, two middle schools and one high school. There were three elementary feeder schools for our middle school. The district employed one superintendent, deputy superintendent, Executive Director of Elementary Teaching & Learning, Executive Director of Upper Grade Teaching & Learning, Coordinator of Elementary Special Services and a Coordinator of Bilingual/ESL Services. The district's mission statement focused on "ensure the highest achievement for every student in meeting academic expectations that exceed standards, learning 21st century skills, and developing social and cultural proficiency. Promote life-long learning, ethical leadership, and active citizenship in concert with every member of our community" (Site A School District, n. d.). The school's mission statement reflected a commitment to meeting the needs and interests of its students by encouraging "the love of learning by providing a variety of experiences and high expectations in a safe environment defined by our diverse community where the values of respect, responsibility and caring guide our every day decisions" (Site A Middle School, n. d.).

The district employed one superintendent, deputy superintendent, executive director of elementary teaching & learning, executive director of upper grade teaching & learning,

coordinator of elementary special services and a coordinator of bilingual/ESL services. The instructional expenditure per students was $5,548 compared to the state's per student expenditure of $6,773. The tax base from 2010 was $5.31 per $100 (ISBE, 2011, P.3)

Site B.

The total population of the town Site B is located in was 27,165 in 2009. The population had increased by 26.3% since 2000. Males accounted for 48.7% of the population while females accounted for 51.3%. The median age was 34.3 years (City-Data.com, n. d., *Site B*). The age distribution was 30.3% under 19, and 37.3% between the ages of 20 and 44. The primary ethnicity of the community was Caucasian (refer to Table 10 below).

Table 10

Ethnicities of Site B Community by Percent

Caucasian	Hispanic	Asian	African American
84.2	13	1.8	0.2

The median household income was $66,581. Residents making below $15,000 per year represented 8.0% of the population. High school graduates represented 34.8% of the population, while 18.3% of the population had attained bachelor degrees, and 6.4% had a graduate or professional degree (Site B Home Page, 2010, *Community Profile*).

There were 10,589 households in the research school area with an average household size of 2.81 people. The unemployment rate for Site B was 9.5%. The majority of the working population ages 16 and over were employed in the below categories in Table 11 (City-Data.com, n.d., *Site B*).

Table 11

Types of Occupations by Percentage

Occupations	Percentage
Manufacturing	24.0
Construction	16.0
Retail trade	15.0
Accommodation and food services	5.0
Transportation and warehousing	5.0
Professional, scientific, technical services	5.0
Public administration	4.0

The crime rate in the community (143.8) for 2010 was markedly lower than the U.S. average (319.1). To see the crime break down for Site B see Table 12 below noting that the majority of crimes were thefts (n=480) (City-Data.com, n. d., *Site B*).

Table 12

Community Crime Break Down (n=582)

Crime	Frequency
Murders	1
Rapes	9
Robberies	2
Assaults	25
Burglaries	55
Thefts	480
Auto Thefts	7
Arson	3

The community surrounding Site B was first was used for hunting and fishing grounds for the Potawatomie Indians. McHenry County was named after Major William McHenry who served in the War of 1812 and the Blackhawk War. Site B was a resort area in the early part of the 19th century due to its location on the Fox River and the surrounding lakes. Site B was known at this time as the Gateway to the Chain-of-Lakes. The growth of the city and surrounding community of Site B was attributed to the many farmers who worked the land as

well as the introduction of new factories and industries and the development and improvement of the roadways and railroads (Site B Home Page, n. d., *Community Information*).

Along with its growth, the city had experienced many improvements including a growing retail community over the last five years. The Site B community offers many opportunities for recreation and entertainment including state parks like Glacier Park and Moraine Hills, boat launches along the Fox River and Chain O'Lakes, golf courses, a municipal swimming pool, and a variety of special events and recreational programming for children and adults (Site B Home Page, 2010, *Community Profile*).

The school district consisted of two kindergarten through fifth-grade elementary schools, one year round kindergarten through fifth school, two kindergarten through third grade elementary schools, and one fourth and fifth grade elementary school. There were two middle schools as well. The two kindergarten through third elementary schools fed into Site B. The students from Site B fed into one of the middle schools. Site B's district mission statement stated that it was "a child centered community that values connections between people and learning and an environment fostered by mutual respect" (Building Principal, personal communication, December 13, 2011). The district employed one superintendent that supervised all the district buildings. Other administrative staff included the assistant superintendent for learning services, director of learning services and technology, director of special education, director of bilingual education, and a chief financial officer. The instructional expenditure per students was $5,999 compared to the state's per student expenditure of $6,773. The tax base was $2.88 per $100 (*Illinois School Report Card*, 2011, p. 3). The last referendum for the district was successfully passed in April 2006, allowing for the continuation of after school activities in the middle school and lower class sizes at all elementary grade levels.

National Context of the Problem

Tests are part of the daily fabric of being a student (Schutz, Distefano, Benson & Davis, 2004). Therefore, students with test anxiety experience high levels of nervousness and stress that can affect their social and emotional health as well as their performance in the classroom (Cizek & Burg, 2006; Huberty, 2009, as cited in Salend, 2011). The focus on testing in the United States is increasing. Testing permeates the educational system and for some students the emotions experienced, such as fear and anxiety as well as challenge and pride (Schutz, et.al., 2004). Due to the widespread evidence of the severity of the problem, the teacher-researchers found it necessary to investigate.

Reflection

Three teacher-researchers have identified possible connections between outside factors within the community and test anxiety. Many families in each district have experienced a change in their socio-economic status due to the recession. Unemployment rates within each community were both over the national rate. We believed that each of these factors contributed to the overall anxiety of our students on a daily basis. We have also noticed that many students are forced to become caregivers to their siblings or find ways to contribute to their families' income. Therefore, we wondered if test preparation lost its importance when basic needs were not being met. When such basic needs were not met, we noticed that students had difficulty concentrating in the classroom. Low standardized test scores in each of the three sites were prevalent despite the high amount of time spent focusing on test taking strategies during the school day. Based on the experience of the teacher-researchers, students demonstrated varied levels of test anxiety that appear to be heightened by the community in which they live.

Chapter 2

Problem Documentation

Evidence of the Problem

The problem area for this was test anxiety and how it affected student achievement. Some students who seemed to do well in classroom activities had poor test scores. Students had been observed not using proper study skills or test taking strategies. During a test, some students were distracted by the environment, peers, or became distractions to others. Students were also observed to be affected by tests negatively on emotional, behavioral, physical, and academic levels evidence of the problem was documented by the teacher researchers through a student survey, parent survey, and teacher survey. Fifty-eight sixth-grade and seventh-grade students from Site A completed the survey as did 18 fifth-grade students from Site B, for at total of 74 participants. Additionally, 44 teachers from Site A and 20 teachers from Site B participated, for a total of 64 respondents. A total of 58 parents participated in the surveys between both sites. The teacher researchers collected data from these tools from a total of 176 research participants from August 17, 2012 to September 7, 2012.

Student Survey.

The purpose of the student survey was to gain knowledge of students study habits, and gain prospective about their feelings while taking tests. The Teacher-Researchers A and C conducted the survey within the classroom during week 2 and had a return rate of 100% (n= 74). Teacher-researcher B conducted the survey within the classroom during week 1 and had a return rate of 100% (n=74). Seventy-four students at all three sites were given surveys with six questions to complete in class. There were three questions that asked students to circle all answers that applied to them on preparing for tests, what kind of test questions they liked to

answer, and how they felt while taking tests. One question asked students to use a Likert scale to describe test preparation habits based on *never (1), sometimes (2), often (3), and always (4).* One question in the survey asked students to rate how comfortable they felt taking tests by subject based on *most comfortable (1), comfortable (2), somewhat comfortable (3), and not comfortable (4)*. This tool can be found in Appendix A.

The first survey question asked the student to select the feelings they faced while taking tests in school. Students were instructed to circle as many answers that applied. The figure below identifies these behaviors. A majority of the students (n=47 of 235, 20%) felt that they were nervous while taking tests in school. The next three emotions students experienced during testing were stressed (n=30 of 74, 40.5%), boarded (n=29 of 74, 39.1%), and confused (n=28 of 74, 37.8%); all of which contribute to negative connotation of test taking among students.

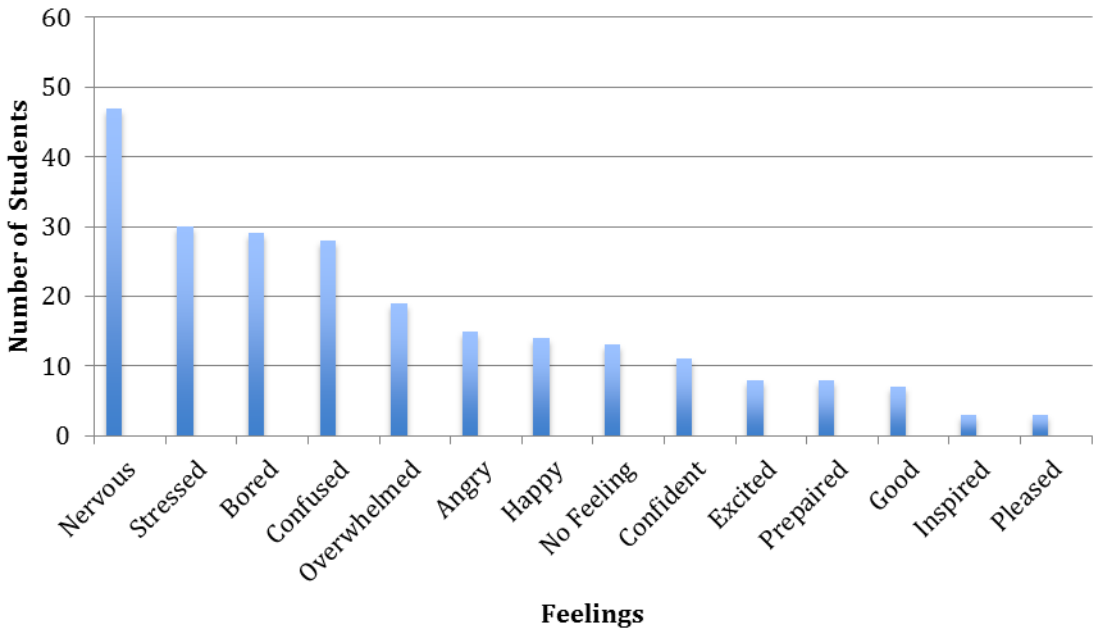

Figure 1: Students' Reactions to Tests (n=235)

The second question gave students the opportunity to share what tools they used to study for upcoming tests in school. Students were instructed to circle all answers that applied. Two options provided stood out the most. Over half of students asked said they studied with practice tests (n=45 of 74, 60.8%). Study guides followed closely behind (n=32 of 74, 43.2%). Answering honestly some students said they did nothing to study for upcoming test (n=17 of 74, 22.9%).

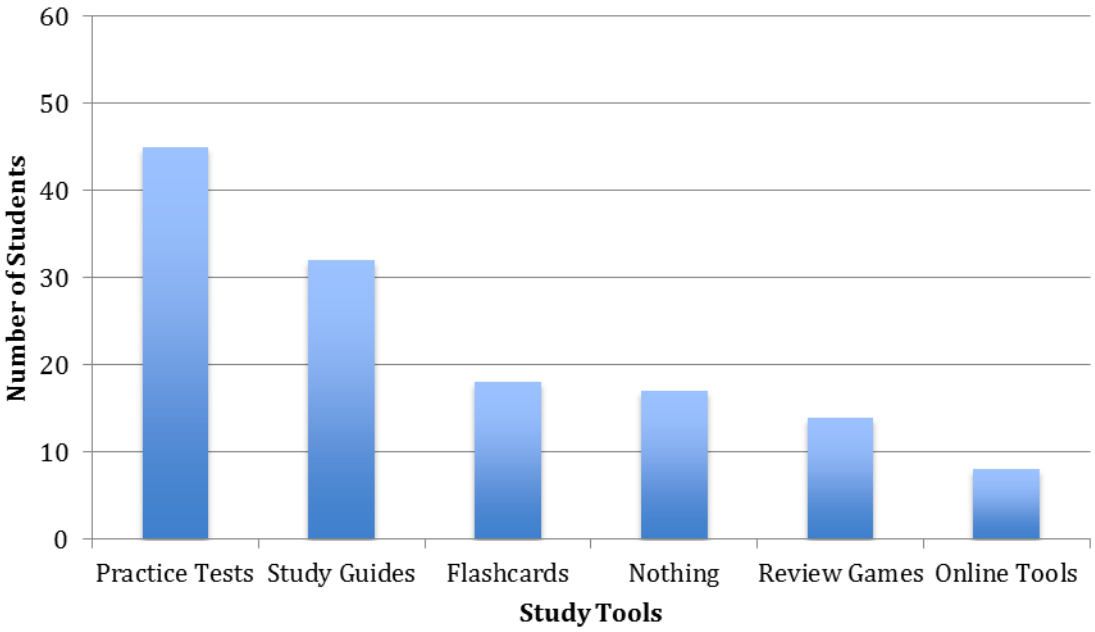

Figure 2: Study Tools Students Use (n=180)

The third question on the survey asked students to share how much time they spent preparing for tests. They were given four time spans and asked to select only the one that applied to them. The majority of students spent 1-2 days studying for upcoming tests (n=36 of 74, 48.6%). While some students said they spent no time at all studying for tests (n=14 of 74, 18.9%).

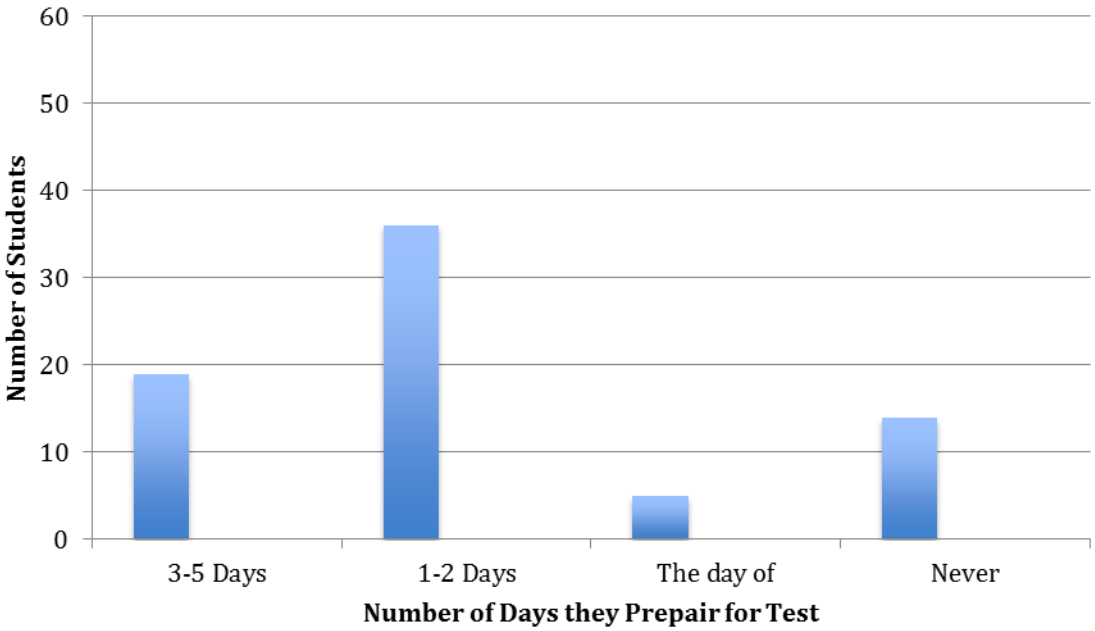

Figure 3: Number of Day's Students Study for Tests (n=74)

Then, in the fourth question students were asked how often someone at home helps them study for tests. To answer this, a Likert scale of *never (1), sometimes (2), often (3), and always (4*) was used. Only 11 students (15%) said they never studied for tests. A large number of students (n=31 of 74, 42%) said they were helped sometimes at home to prepare for a test.

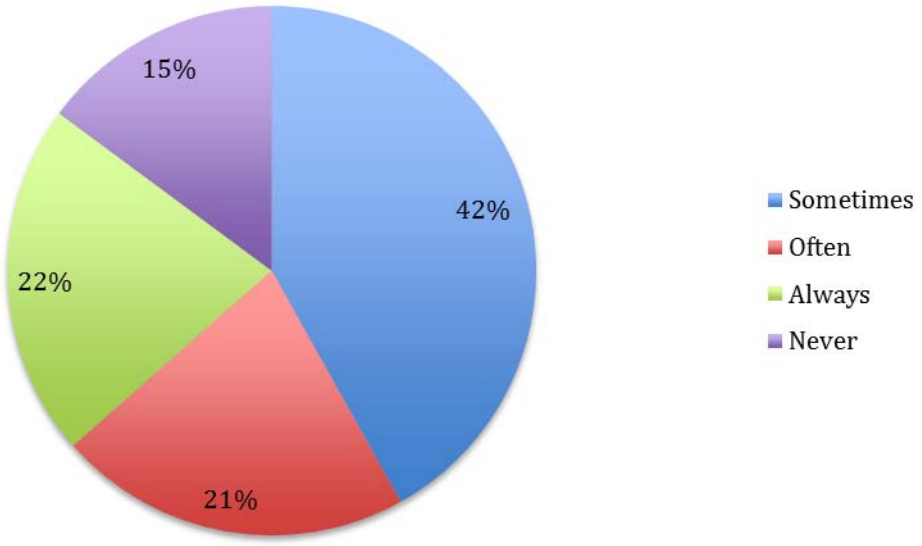

Figure 4: Students' Reactions to Tests (n=74)

The fifth question on the student survey allowed students the opportunity to share what types of questions they liked to see on tests. The students had one clear favorite, which was true or false (n=58 of 183, 31.6%). Three were two runner-ups. Multiple choice came in second place (n=38 of 183, 20.7%), and fill in the blank took third place (n=35 of 183, 19.1%). Coming in dead last was Essay tests.

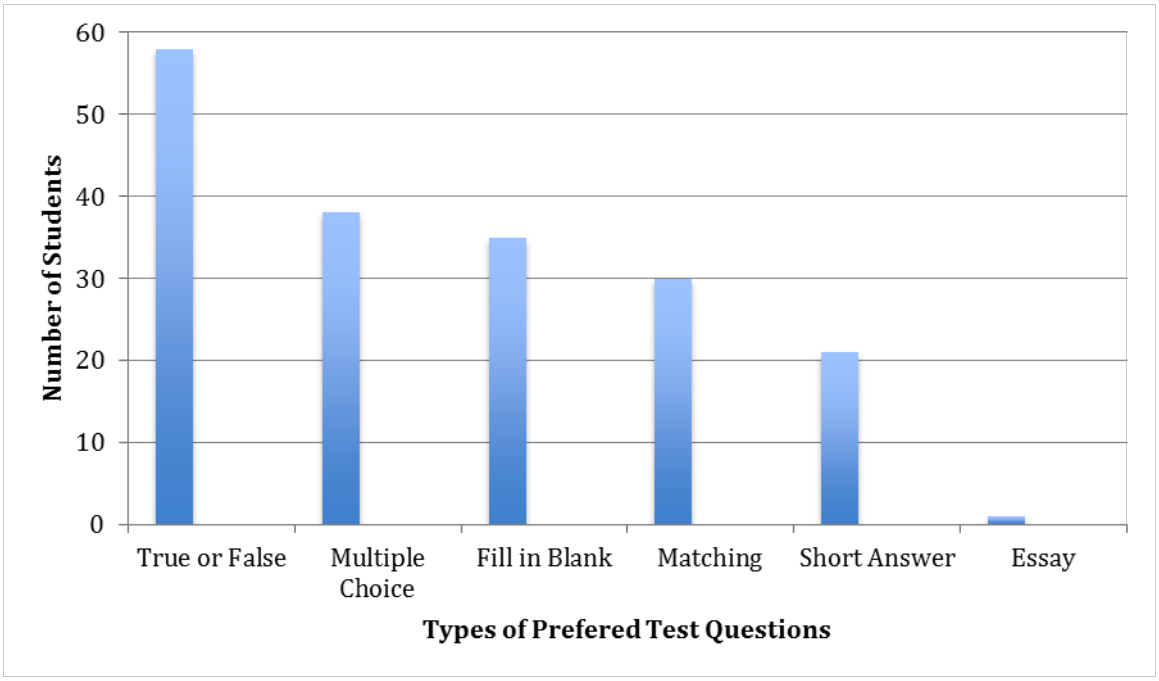

Figure 5: Student Preferred Test Questions (n=183)

The sixth question on the survey asked students to describe their comfort level with taking tests in each subject area; math, science, language arts, and social studies. A Likert scale of *most comfortable (1), comfortable (2), somewhat comfortable (3), and not comfortable (4)* was used. In the figure below, the data was collapsed into two categories of comfortable (1 and 2) and not comfortable (3 and 4). The subject most students felt comfortable testing in was math (n=43 of 74,58.1%) while more than half of the students felt least comfortable in social studies (n=41 of 74, 55.4%).

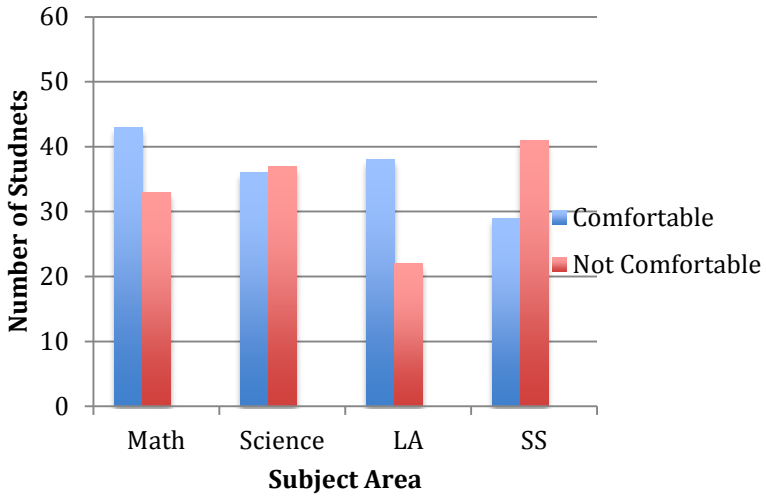

Figure 6: Comfort Level of Students (n=74)

Parent Survey.

The purpose of this tool was to gather information on how parents helped their child prepare for tests, as well as the parents' perspective on how their child responded to tests. The teacher researchers sent these surveys home with the students on various dates. Teacher-Researchers A and C sent them home the second week (n= 60). Teacher-Researcher B sent them homed during the second week (n=25). Surveys were sent home once with a return rate of 58 of 85, 68.2%. The survey contained seven questions. These there were three multiple-choice questions. Three questions asked parents to use a Likert scale to describe test preparation habits based on *never (1), sometimes (2), often (3), and always (4).* One question in the survey asked parents to rate how comfortable they felt helping their child prepare for tests by subject based on

most comfortable (1), comfortable (2), somewhat comfortable (3), and not comfortable (4). This tool can be found in Appendix B.

To start the survey, parents were asked how they thought their child felt about taking tests in school. Parents were instructed to circle as many answers that applied. Slightly over 1/3 (n=48 of 135, 35.5%) of the parents responded that they felt their child experiences nervousness when faced with taking a test in school. The next three emotions parents thought their children felt were confusion (n=21 of 135, 15.5%), overwhelmed (n=16 of 135, 11.8%), and stress (n=15 of 135, 11.1%); all of which contribute to negative connotation of test taking among students.

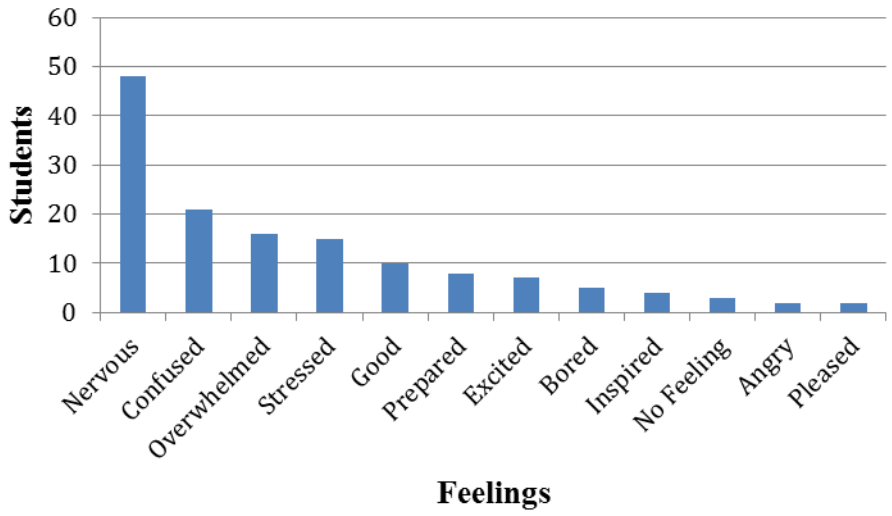

Figure 7: Parents' Idea of Students' Reaction to Tests (n=135)

The second question in the survey asked parents who was responsible for preparing their child for tests. Parents were instructed to circle all answers that applied. It is noteworthy that overall, the parents that were surveyed felt the responsibility of preparing students for tests fell on everyone involved; the student (n=49 of 143, 34%), the parent (n=46 of 143, 32%), and the teacher (n=48 of 143, 34%).

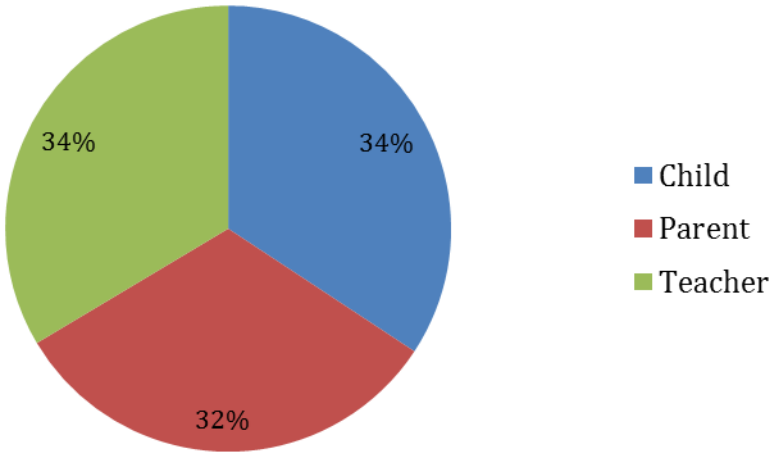

Figure 8: Responsible for Test Preparation (n=143)

The third question on the survey asked parents to describe their comfort level with helping their child study for tests per subject area; math, science, language arts, and social studies. A Likert scale *of most comfortable (1), comfortable (2), somewhat comfortable (3), and not comfortable (4)* was used. In the figure below, the data was collapsed into two categories of *comfortable (1 and 2) and not comfortable (3 and 4).* The subject most parents felt comfortable helping their child in was math (n=39 of 143, 62.2%) while more than half of the parents felt least comfortable helping their child in social studies (n=29 of 143, 50%).

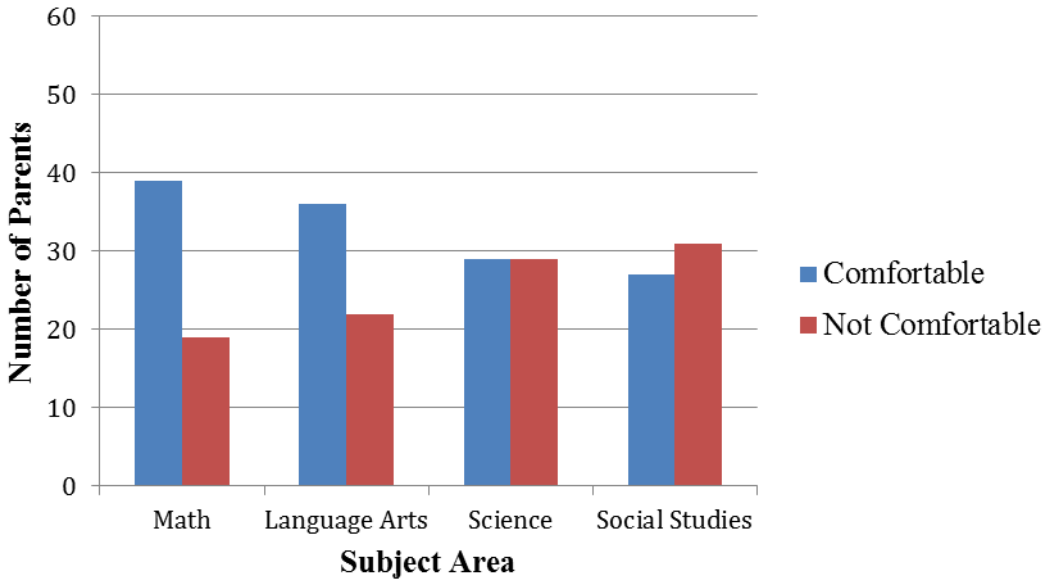

Figure 9: Comfort Level of Parents (n=232)

Then, parents were asked how often during the previous school year they helped their child study for a test. To answer this, a Likert scale of *never (1), sometimes (2), often (3), and always (4)* was used. Only one parent (2%) said he or she never helped their child study for a test. A large number of parents (n=23 of 58, 40%) said they either often or always helped their child prepare for a test.

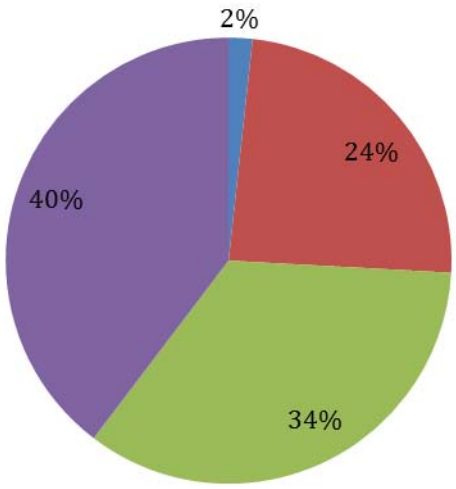

Figure 10: Frequency Parents Help Child Study (n=58)

One question gave parents the opportunity to share what they did or used with their children in order to make sure they were prepared for a test. Parents were instructed to circle all answers that applied based on the options provided. Almost all parents (n=55 of 134, 41%) use study guides with their child in order to help them study for tests. Some parents (n=11 of 134, 8.2%) said they do nothing when helping their child prepare for a test.

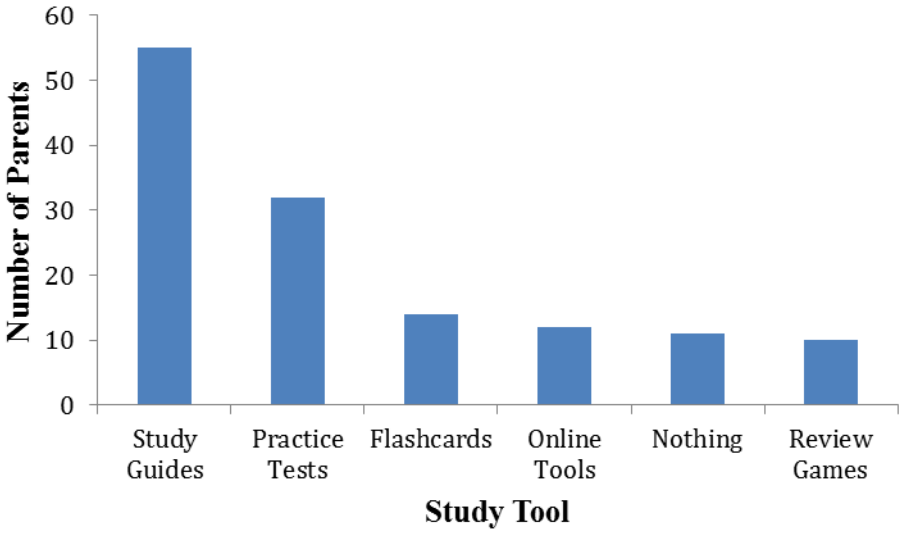

Figure 11: Study Tools Parents Use (n=134)

When parents were asked if they encourage their child to do extra work to make sure they understand the material taught in class, a Likert scale of *never (1), sometimes (2), often (3), and always (4)* was used. Only 1 parent (2%) said they never have encouraged their child to do extra assignments to ensure understanding. A large number of parents (n=44 of 58, 75.9%) either sometimes or often support their child in doing what they can to understand the material from class.

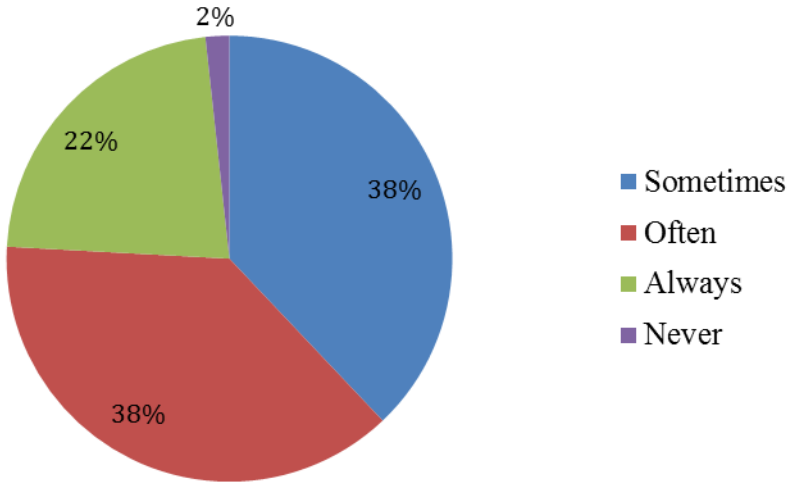

Figure 12: Frequency of Encouraging Extra Work (n=58)

Lastly, parents were given the same Likert scale described above to rate how often they felt their child were prepared for tests. The majority of parents (n=47 of 58, 81%) felt that their child was either sometimes or often prepared for tests in school. However, it was important to note that some parents (n=4 of 58, 7%) responded that their child is never prepared for tests.

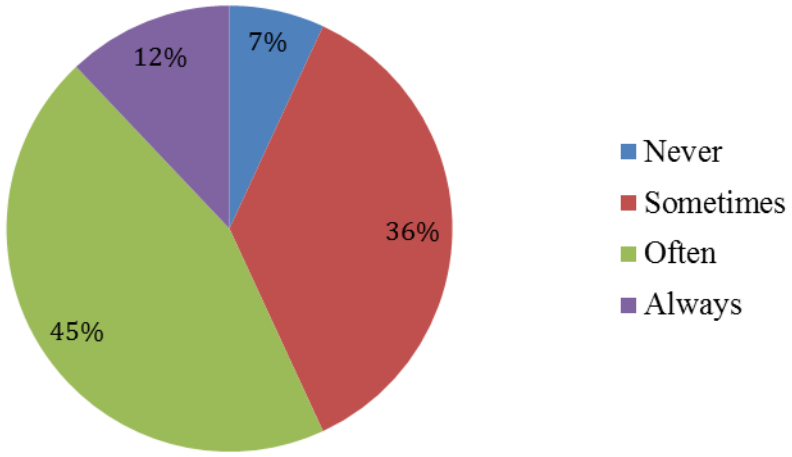

Figure 13: Frequency Children Are Prepared for Tests (n=58)

Teacher Survey.

The purpose of this tool was to gather information on how teachers prepare students for taking tests, the types of test taking strategies they teach and implement in their room, and what signs of test anxiety they see in their students when they are taking a test. The teacher researchers distributed the surveys to staff members during week 2 (n=104). Surveys were distributed with a return rate of 61% (n=64 of 104). The survey contained five questions. All the questions were open-ended, giving the teachers a variety of answers to choose from, with the option to add extra information if need be. This tool can be found in Appendix C.

To start the survey, teachers were asked to indicate what types of tests they used in their classroom. Figure 14 shows the greatest percentage of teachers used teacher created tests (n=58 of 146, 39.7%), with teachers using modified pre-made tests next with the most frequency (n=50 of 146, 34.2%), followed by pre-made tests (n=28 of 146, 26.0%).

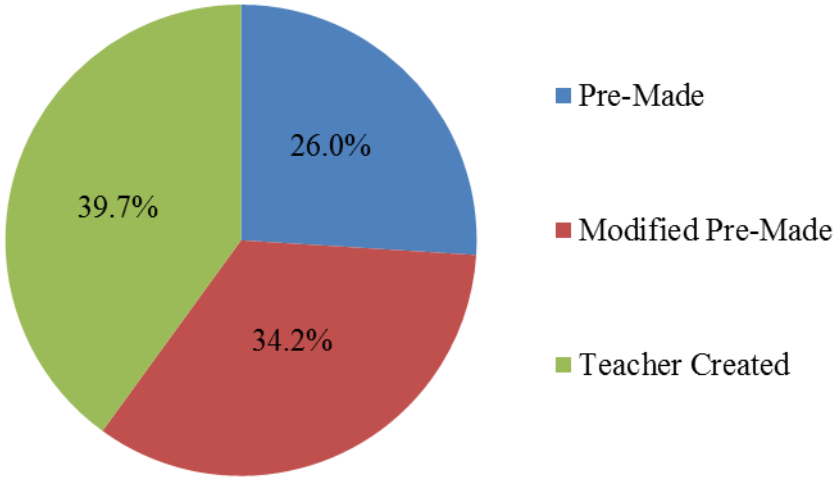

Figure 14: Types of Tests (n=146)

The second question in the survey asked teachers if they provided students with strategies to prepare them for tests, and if so, to indicate which strategies they used within their classroom by circling all the answers that applied. It can be noted that review games (n=57 of 190, 30.0%), study guides (n=43of 190, 22.6%), flashcards (n=35 of 190, 18.4%), and practice tests (n=33 of 190, 17.3%) were the strategies teachers implemented with the greatest frequency when preparing their students for tests.

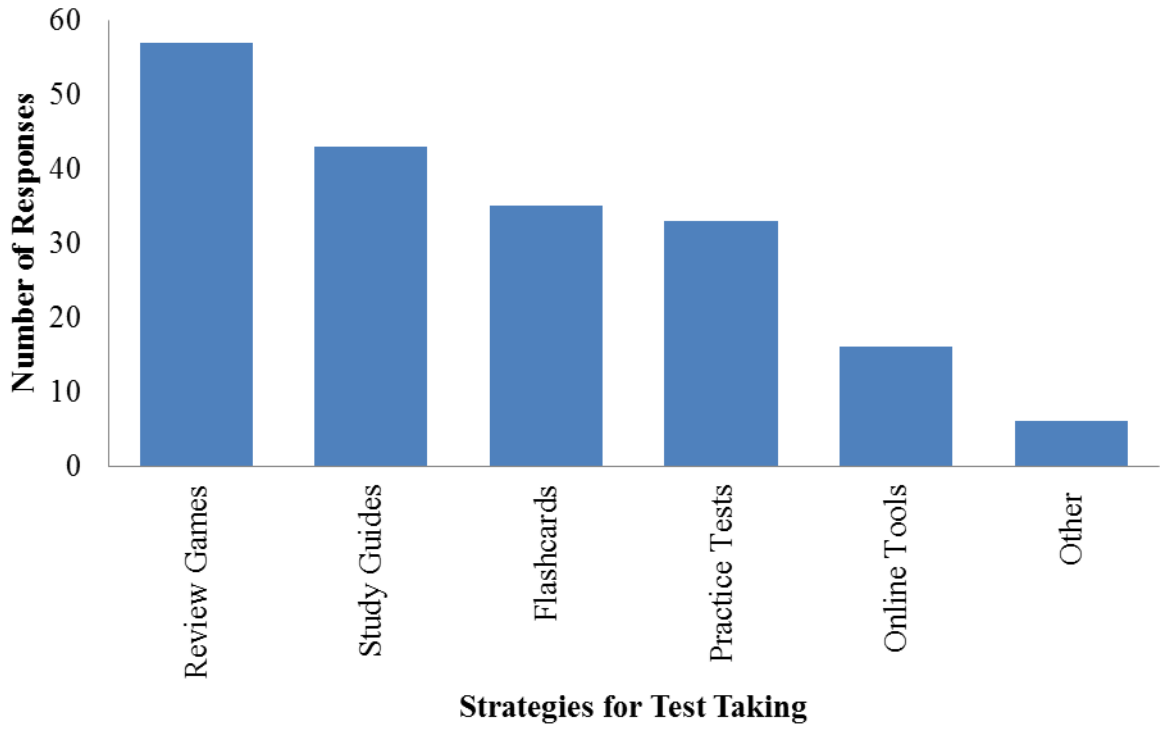

Figure 15: Strategies Used to Prepare Students for Tests (n=190)

The third question of the survey asked teachers if they taught test taking strategies to their students, and then circle all of the answers that applied to their classroom. Eliminating wrong answers (n=53 of 230, 23%) and double checking answers (n=52 of 230, 22.6%) were the two most notable strategies taught, followed very closely by using resources (n=44 of 230, 19.1%) and doing what you know first (n=42 of 230 , 18.2%).

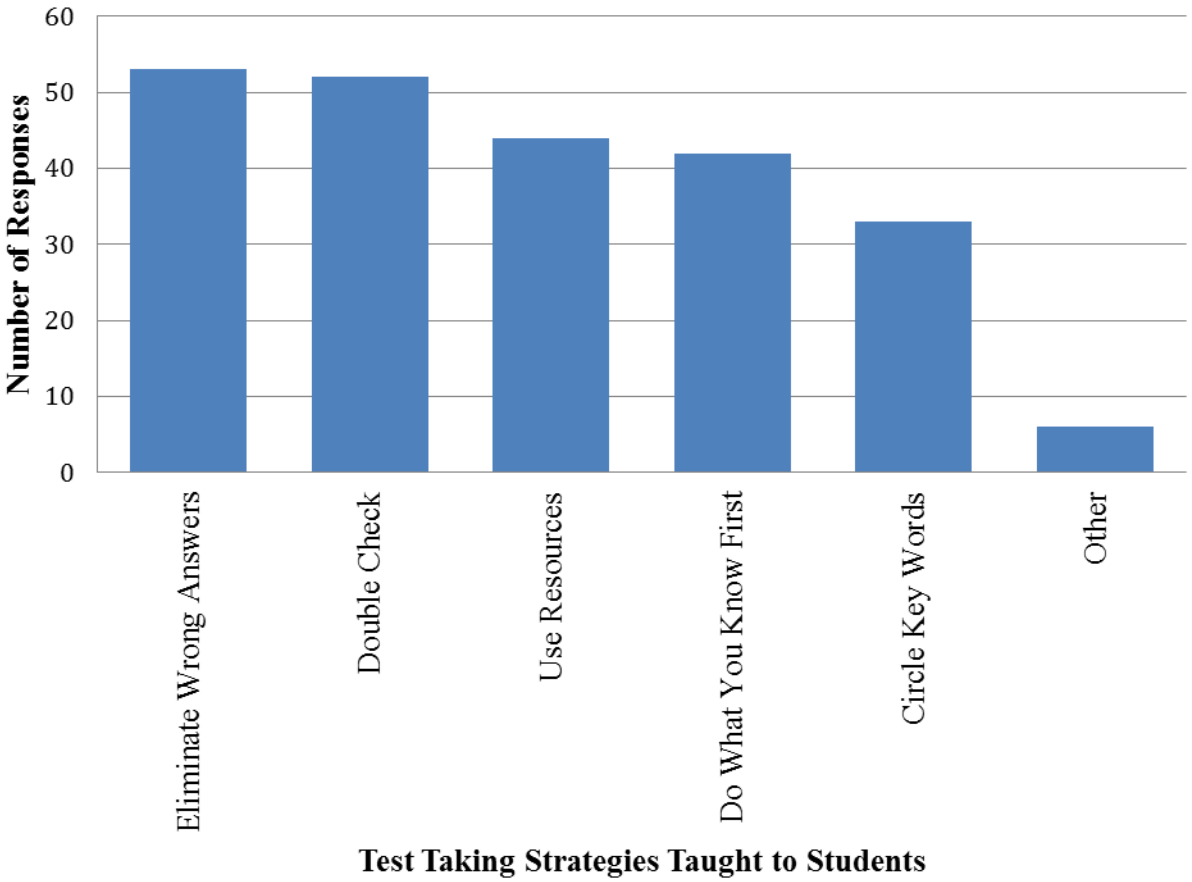

Figure 16: Test Taking Strategies Taught to Students (n=230)

Teachers were asked on the fourth question of the survey to reflect on the signs of anxiety that their students exhibited during a test and circle the top three that applied to their classroom. It is noteworthy, that of all the signs exhibited, tapping of a pencil (n=33 of 230, 14.3%) was the most prevalent sign of test anxiety. Also notable are a refusal to do work (n=25 of 230, 10.8%), nervousness (n=24 of 230, 10.4%), lying with head down, (n=22 of 230, 9.5%), sighing (n=21 of 230, 9.1%) , and distracting others (n=21 of 230, 9.1%) . Nine other examples of test anxiety not presented in Figure 17 included such responses as stomach ache, laughing, disrespecting the teacher, headache, crying, disrespecting students, biting nails, walking around

and sweating. These survey results were negligible, eliciting less than 4% for each option. Written responses included by teachers also noted that students used avoidance behaviors to delay completion of tests, such as signing out to use the bathroom or to get a drink.

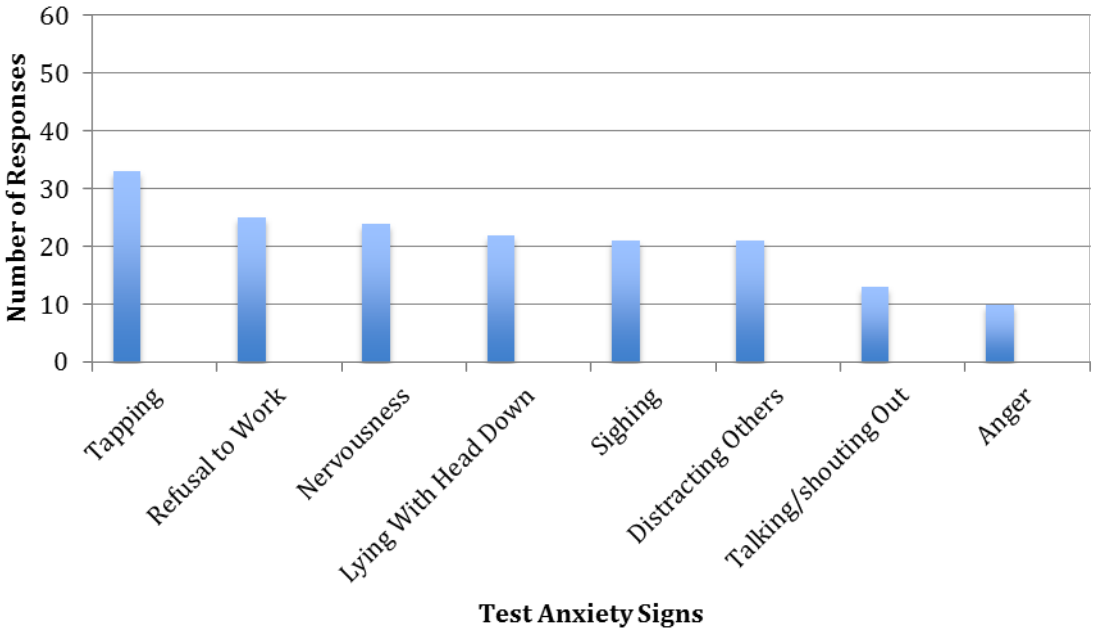

Figure 17: Signs of Student Test Anxiety (n=230)

The final question on the survey asked teachers what options were given to students to show mastery of the content being tested, and then to circle all the answers that applied to their classroom. Noteworthy results showed that test corrections (n=43 of 115, 37.4%) , taking a retest (n=39 of 115, 33.9%), and alternative forms of assessment (n=26 of 115, 22.6%) were all important to teachers. Written responses included by teachers also referred to types of alternative assessments, such as reading tests aloud to students, eliminating choices on multiple choice tests, and extended time as specified in an IEP.

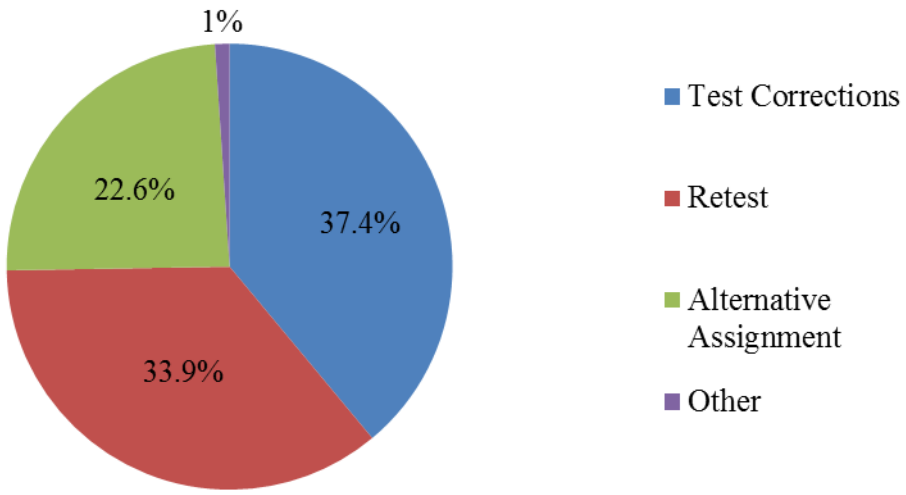

Figure 18: Opportunities Given to Master Content (n=115)

Summary

After analyzing student, parent, and teacher surveys, the teacher researchers concluded that students felt nervous, stressed, and other feelings related to anxiety when testing in school. The parents confirmed that students react with these feelings when faced with a test in school. Parents also expressed that they felt it was important for them to help their child prepare for tests and do so regularly. The teachers who were surveyed implemented a variety of test-taking strategies and study tools to help students study for tests. Despite the efforts of teachers and parents to help alleviate the stress related to tests, students were still experiencing high levels of anxiety in test situations.

Reflection

We feel that high levels of test anxiety among students across multiple grade levels is still being experienced even with the best efforts of parents and teachers combined. Parents of students in this research project felt that 34% of responsibility of preparing was on students, 34% were the teachers' responsibility, and only 32% their responsibility. So based on the survey

results, it can be inferred that parents did feel that test preparation should take place at school as well as at home. However the strategies being implemented in the classroom are not helping the way students feel when taking a test. Our student survey showed us that 20% of students experienced the felt nervous prior and during testing situations. Also, showing us that 12.7% of students felt stressed out prior to and during testing situations.

This led us to search for an alternative to the traditional way students are assessed. Because of research and high anxiety reported, we intend to let the student's collaboratively take tests, hoping they will be more willing to take a risk the first time taking the test, knowing they will be able to discuss their answers in a group of their peers. When students know they have a second chance at a test and they can compare, discuss, and change their answers as needed, feelings of nervousness and stress will be reduced.

As teachers this means spending more time in preparation with regard to pre-tests, differentiated materials and lessons, as well as assessments. Our results about test design showed us that the students like test that use very little writing and explanation of thought. Fifty eight students preferred true or false question, while multiple choice was preferred by 38 students, which helped us while creating our pre-test. However when creating the post-test we need to use more writing and expiation typed questioning. Although test design and differentiation takes a good amount of time, it is important for students to be instructed on a level that best suits them and then assessed accordingly. Students will need to be taught how to work collaboratively with their peers while also applying test-taking strategies they are learning in the classroom. For teachers and students, this will be a process, but it will eventually help students feel less anxious about test taking.

Probable Causes

Test anxiety is a growing problem among students. The Teacher-Researchers researched how it affects students during assessments. There are many different factors to test anxiety. The types and levels of test anxiety may change based on the type of assessment students are taking. Also, it can occur before, during, and after assessments.

Test Anxiety.

Anxiety is an emotion related to the stress one might feel before a threatening event, such as taking a challenging test (Marx & Stapel, 2006), and students, tests are part of the daily fabric (Schutz, Distefano, Benson & Davis, 2004). Test anxiety is seen as a trait that is specific to the situation of being tested or assessed based on a student's performance (Hodapp, 1995 as cited in Stober, 2004).

The focus on testing in the United States is increasing. Testing permeates the educational system and with it the emotions that students experience related to testing such as fear and anxiety as well as challenge and pride (Schutz et al., 2004). Students with test anxiety experience high levels of nervousness and stress that can affect their social and emotional health as well as their performance in the classroom (Cizek & Burg, 2006; Huberty, 2009, as cited in Salend, 2011a). Through literature on emotions, emotional regulation, coping, and test anxiety, a theoretical definition was proposed about emotional regulation during testing. It was composed of three dimensions: task-focus processes, emotional-focus processes and cognitive-appraising processes (Schutz et al., 2004). Based on surveys done, researchers estimated that 25% - 40% of students experience test anxiety that can interfere with their motivation, memory, attention, test-taking behaviors, and test performance (Cassady, 2010 &, Huberty, 2009, as cited in Salend, 2011a). Students with disabilities seem to be more likely to experience test anxiety (Salend,

2011b). Middle and high school students seem to show more behavioral symptoms associated with test anxiety while elementary students are more likely to show physical signs of anxiety (Whitaker, Sena, Lowe, & Lee, 2007, as cited in Salend, 2011b).

It has been hypothesized that the perception of the test difficulty just before or as an exam begins will impact the amount of anxiety that participants feel (Hong, 1999, & Kim & Rocklin, 1994, as cited in Weber & Bizer, 2006). If the amount of anxiety a students experiences during an exam can be conceptualized as a sum of the student's trait anxiety and the additional state anxiety that results from perceiving an exam to be difficult, some interesting predictions can be made (Weber & Bizer, 2006).

Students with low anxiety performed better when told that the test would be difficult than when told that the test would be easy, whereas high-anxiety students performed worse when warned that the test would be difficult than they did when told the test would be easy (Weber & Bizer, 2006). No matter the level of anxiety assessment means different things to different people. Parents see it as a high-stakes state test, while students see it as a competition with their classmates to see who can get the highest grade (Using Classroom Assessment, 2006). The emphasis on preparing for high-stakes tests has meant that more focus has been placed on learning test-taking strategies, taking practice tests and participating in test simulations rather than learning for the joy of it (McLeod & Vasinda, 2009). What if teachers, while handing out the examination, should off-handedly mention that the exam is very difficult, and in fact expects that vary few students will do well on it. One can wonder what effect such a warning will have on students (Weber & Bizer, 2006). Foos argued that the effect was an enhanced motivation to study for the difficult and essay conditions. The study led, in turn, to better performance on the subsequent test (Foos, 1992, as cited in Weber & Bizer, 2006).

Evaluating student work can cause teachers assessment anxiety (Using Classroom Assessment, 2006). Teachers have good intentions of developing assessments that focus on developing higher order cognitive skills, but still rely on easier to administer quizzes and other classroom assessments that look for basic knowledge of facts and definitions (Guskey, 2005b). To effectively teach students according to standards, teachers must break down the standards into the various components that students must learn, strategize an effective learning sequence, and make adaptations so all students can understand and master each component. Then teachers need to develop formative assessments that assess the student's learning and determine whether they understand what they have learned and whether the instructional activities have been effective (Guskey, 2005b). One strategy is to develop tables of specifications. These can be challenging and even though it is known what concept needs to be taught there is no specific instructional practice on how to reach that goal (Guskey, 2005b). When teachers analyze their classroom assessments they may not find them on the table of specifications which means that that aspect of learning is unrelated to the standard, and then they find that important concepts outlined in the table are not in their existing classroom assessments (Guskey, 2005b).

Factors of Test Anxiety.

As identified in the Educational Testing Service report, a wide range of environmental factors, external to school, have been found to contribute to student's achievement gaps (Barton, 2003, as cited in Guskey, 2005a). Many researchers have formulated hypotheses about possible reasons for aberrant test response patterns: demographics characteristics, such as gender, ethnicity, or language deficiencies; educational characteristic, such as anxiety, motivation, misconceptions, or instructional effects; test talking strategies, such as guessing, cheating,

sleeping, or plodding; and external factors, such as fatigue, noise or distractions (Petridou & Williams, 2007).

From this one can summarize that test anxiety falls into four categories: interference, worry, lack of confidence, and emotionality (Stober, 2004). Interference is related to the ways in which students avoid the assessment and/or preparing for it (Stober, 2004). Worry is related to how students prepare for the assessment and how familiar they are with the task (Stober, 2004). Lack of confidence is related to students avoiding preparing and taking the assessment (Stober, 2004). Emotionality is related to how students prepare for the assessment, how familiar they are with the task, and support from their peers (Stober, 2004).

The highest levels of test anxiety have been shown to be related to coping strategies by students that are emotional and help students avoid the situation (Stober, 2004). The term coping refers to an emotional regulation that occurs when preparing, confronting, and dealing with the unpleasant emotions associated with a threatening event (Schutz et al., 2004). It should be noted that avoidance was scarcely used as a way of coping by students when preparing for an assessment or feeling unsure about an assessment (Stober, 2004). Feelings of worry can be brought on by the consequences of the assessment while emotionality can become a factor for students based on the immediate circumstances of the assessment such as the format or classroom itself (Putwain, 2008). Frustration is an emotion related to the disappointment and anger one might feel if the event did not turn out as one had hoped (such as underperforming on a challenging test) (Marx & Stapel, 2006). A lack of confidence may not be a part of test anxiety, but just related to such anxiety in certain students (Stober, 2004).

Students' gender has been seen to be an important factor for test anxiety as well as how students cope with test anxiety (Stober, 2004). Females were shown to worry more, be less

confident, and be more emotional due to an assessment situation than males (Stober, 2004). Females also reported preparing more for the assessment as well as seeking more support from peers, when compared to males (Stober, 2004). Males reported to use the coping strategy of avoidance more than females (Stober, 2004).

Types of Assessments.

Neither a single test nor even a set of tests can ever address all the content that is taught within a given subject area at a given grade level (Marzano, 2003). When looking at a student's literacy development and achievement, they have a significantly more diffiicult time when one factors in comprehension, vocabulary, word recognition, and writing (Lee, Grigg, & Donahue, 2007, as cited in Teale, 2008). Consequently, as the research had traditionally shown, as the test increases, performance on an examination decreases (Cassady & Johnson, 2002, Holroydm, Westborrok, Wolf, & Badhorn, 1978, Horn & Dollinger, 1989, & McDonald, 2001 as cited in Weber & Bizer, 2006). Using standardized tests as the only form of assessment provides teachers and parents with a limited view of what the student's skill level is and how they are developing academically (Sarason, 2004, as cited in McLeod & Vasinda, 2009). Standardized state tests provide teachers with incomplete information about student performance. Teachers will note what objective has not been mastered, but not how the students reached that answer or what kind of instruction is needed to learn mastery of that objective (Using Classroom Assessment, 2006).

Furthermore, using measures of student learning that are not sensitive to actual learning occurring in classrooms is the first mistake in testing (Marzano, 2003). Schools using standardized test scores could produce false conclusions (Marzano, 2003). Students who take these tests year after year will only see learning as finding the one correct answer out of four

choices. By only looking for the supposed right answer, students will not be looking at a problem and learning how to solve it with creativity (Ravitch, 2012 as cited in Dodge, 2012). When test questions for the National Assessment Government were reviewed, it was found that some questions would have two possible right answers, but one best answer. Any student who thought outside the box would be penalized for picking the second answer, and would be penalized for thinking differently (Ravitch, 2012, as cited in Dodge, 2012).

The problem with multiple choice tests is that they don't show mastery of a given subject. Multiple choice tests give little feedback about what and how to teach and how to learn (Wiggins, 1998, as cited in Prouty, 2006). The problem has been that schools or districts choose an assessment program due to its scientific credibility and so the assessments are what are driving the literacy programs, therefore the content of lessons is what is measured in the assessments (Teale, 2008). When tests are created, they are only covering a sample of the entire subject matter, and so are not covering all the concepts and processes that are embodied in a subject area (Marzano, 2003).

Therefore, creating a good test is a challenge. Many students take poorly designed tests that negatively affect their performance and report card grades (Salend, 2011). Student involvement in the evaluation in their own learning is something that is missing from current assessment practices (Heritage, 2009). Teachers get little help in developing classroom assessments that not only accurately address standards but also diagnose individual learning problems of students. The problem with large scale assessments is that they are too broad and are administered infrequently. By the time teachers receive the results from these assessments the students are well into the second half of the school year or have already moved on to the next grade level (Guskey, 2005b).

Teachers, in fewer than half the states, are not required to be competent in assessment to receive their license (Stiggins, 1999, as cited in Guskey, 2003). Also, many teachers look at assessment as an evaluation device used to assign grades to students (Guskey, 2003). Some secondary teachers worry that if they focus on feedback, corrective and enrichment procedures to better assess their students, that they will not sufficiently cover the curriculum that they are expected to cover (Guskey, 2005a). Consequently, teachers must decide what concepts and skills their students need to learn and understand and how their mastery of these concepts should be reflected (Guskey, 2005a). Education today is enamored with the concept of "what's new" and because of this, there is an overabundance of modern theories about how to close the achievement gap (Guskey, 2005a).

During Assessments.

There are theoretical and empirical reasons to suspect that emotional reactions do change during the testing situation (Marx & Stapel, 2006). For example, students must feel that a test is not going well or see it has not having significance for them to experience anxiety over the outcome of the test (Smith, 1991; Smith and Ellsworth, 1987 as cited in Schutz et al., 2004). Not studying enough or poor studying may intensify the anxiety students may face while taking a test (Cassady, 2010; Heiman & Precel, 2003, Huberty, 2009, as cited in Salend, 2011a). Students that experience anxiety will have a very difficult time recalling the content learned, be easily distracted during the assessment, and have problems reading or understanding the directions (King, Ollendick, & Gullone, 1991, as cited in Putwain, 2008). Emotional scales related to anxiety have been used by researchers (Marx & Stapel, 2006). However, measurement with these scales was not always able to pick up the range of emotions or the emotional state experienced by students before and after the test (Aronson, Lustina, Good, Keough, Steele, &

Brown, 1999; Gonzales et al., 2002 as cited in Marx & Stapel, 2006). By examining the student's emotional state during testing, it may be beneficial in discovering how a more varied loss of emotions might be particularly effective in capturing targets' affective states during the testing session (Bosson et al., 2004, Keller & Dauenhiemer, 2003, Oswald & Harvey, 2000, & Sone et al., 1999, as cited in Marx & Stapel, 2006). It can be noted that high test-anxious students reported using strategies as much as low test-anxious students (Kondo, 1997, & Zeidner, 1998 as cited in Schutz et al., 2004). Furthermore, with the increasing focus on high-stakes testing, it is hoped the ERT may become a useful tool to help students learn to prepare and take test in a manner that will provide a more accurate reflection of the effort, ability, and the strategies used to take test (Schutz et al., 2004).

Results.

When the consequences of an assessment are emphasized, the test is seen as threatening by students (Ball, 1995, as cited in Putwain, 2008). Therefore, anxious students are more likely to have have difficulty during test taking, and sothe result may be underachievement (Hembree, 1988, as cited in Putwain, 2008). Educators use results from tests to determine report card grades and honors, approve promotion and graduation, and monitor students' learning progress and the efficacy of instruction. (Salend, 2009, as cited in Salend, 2011). The grades received by students have so much emphasis put on them because they ultimately are used to decide what colleges a student is admitted to and what jobs they will be hired for (Thayer-Bacon, 2008). These grades can have a large effect on student's lives as adults because the grades are used as a judgment of a student's worth or potential (Thayer-Bacon, 2008).

Problems with Strategies Used.

When teachers are given a copy of state or national standards as a guide to the curriculum that should be taught, there is no guarantee as to what will be taught in the classroom. Each teacher will interpret these standards differently, and as such, there is no consistency from classroom to classroom, or teacher to teacher (DuFour & Marzano, 2009). Even when teachers are providing feedback to students in the classroom, its effectiveness cannot be guaranteed as an assessment tool (Black & William, 1998, as cited in Using Classroom Assessment, 2006). When schools use large-scale state assessments, the purpose is clear: to rank schools and students. They are not useful tools in providing teachers with information that will improve their instruction due to the tests end of year timing, delay in receiving results, and little detail that would be useful to structure specific improvements in instruction (Barton, 2002, & Kifer, 2011, as cited in Guskey, 2003). Furthermore, when teachers taught all students the same way with the same amount of time, then there were only a few students who learned the concepts well, while the larger number of students learned very little (Bloom, 1964, as cited in Guskey, 2005a). Some teachers believe that giving students a second chance at an assessment is unfair, and that real life is not like that (Guskey, 2003). Other teachers believe it is unfair to give higher grades to students who have to take a second assessment when other students have already shown mastery of the concept. They believe that there are some students who may not have prepared properly for the initial assessment (Guskey, 2003).

The ultimate problem then becomes that students at the middle school level can not read critically, problem solve, or articulate in writing what they have learned. The result is students have difficulty reading and responding to content area texts that are at their grade level (Teale, 2008). An alternative is mastery learning units. When introducing these to students, more time

is needed to orient students to the process. More time is needed so teachers can instruct students in corrective work, which can cause that class to be two to three units behind the traditionally taught classroom (Guskey, 2005a).

Incorporating self-assessment in middle school classrooms requires a change in what and how formative assessment is and how it can be implemented in the classroom (Heritage, 2009). Teachers need to see that self-assessment will be beneficial to their students and that learning is a shared responsibility between teacher and students (Heritage, 2009). Middle school students will struggle with the concept of self assessment as they can be self conscious and swayed by their peer's opinions (Heritage, 2009). Therefore, these students need an environment where they can self assess themselves and take responsibility for their leaning, by knowing what the learning goals are. However, they are not being given this opportunity. Most students are given activities to do without an understanding of the purpose behind the activity (Heritage, 2009).

In many cases if middle school students have not developed their LtL (learning how to learn) skills they are going to experience greater difficulties in high school or other higher learning or workplace experiences (Heritage, 2009). Many students in middle school are unsure how to answer open ended questions, where to get information from and how much detail should be included in their responses (Prouty, 2006). While writing study questions for a subject like science, students are not referring to the rubric while they are writing, and so it needs to be reviewed to remind the students how they will be graded (Prouty, 2006). Consequently, students need to self-assess their work before they turn it in. There can be major differences between student and teacher scores which could mean the rubric was not used by the student, or it was not explained well enough by the teacher, or finally that they just did not understand what to do. This then requires the student to revise their work, adding more time to the process (Prouty,

2006). Another aspect of this process requires students to have three peers review their work before turning it in for assessment. These assessments can be time consuming to grade, taking five to ten minutes per student to grade (Prouty, 2006).

Research shows that it is important that parents be involved in their child's learning, however with single parent families or both parents working, it falls to the teacher to take on most of the responsibility to educate the children. Using 21 century technology is a must to communicate with parents about their student's learning (McLeod &Vasinda, 2009). Electronic portfolios is one alternative assessment tool that teachers are able to use to communicate with the parents. Through a study, students were to write a philosophy statement for their portfolio and be highly reflective during the process over the year. When reviewing what the students liked and did not like about the process, they did not like the interview protocol or the learner's philosophy statement. Students did not like using the same interview questions throughout the process. When asked to reflect on their philosophy statements they did not always have them in front of them so that they could evaluate and revise them (McLeod &Vasinda, 2009).

Another assessment alternative was the use of math journals to help students develop their mathematical thinking skills. One of the concerns of teachers was the time spent recording in journals and also evaluating them (Kostos & Shin, 2010). Students today are expected to show the mathematical thinking process when solving a problem during the Illinois Stands Assessment Test (ISAT), however, they are so concerned with getting the right answer and not able to switch their focus to the process of getting to the answer (Kostos & Shin, 2010). When students were asked to explain how they completed a subtraction problem, they could not explain

their mathematical thinking behind regrouping, only what they had memorized to solve the problem (Kostos & Shin, 2010).

Some students take their preconceived ideas about a physical science topic and it can affect on how they approach and understand new concepts (Wanderson, Mintzes, and Novack, 1994, as cited in Song, 2008, p. 16). The alternative assessment, which is a cartoon project, has the students design a comic that illustrates the scientific concept learned. Students are to find a comic that can be used as the basic idea for the project (Song, 2008). One method of teaching new concepts is cartoon cuts, where one extracted image is selected from a comic strip or TV animation. It does not provide alternative viewpoints about a science concept, so student have to find the hidden concept for themselves (Song, 2008). Concept cartoons are used to help explore the science concept and also determine students preexisting ideas. Teachers need to either draw or find a cartoon of an everyday situation ten add several ideas relevant to the concept that students experience confusion with (Song, 2008).

Description of Recent Experiment.

Pupils were administered a short questionnaire to collect background information with regard to pupils' gender, language, and to measure test-taking motivation and test anxiety. They used the Student Opinion Scale (S.O.S) which is a five-point scale (Petridou & Williams, 2007). Qualitative data and specifically data collected through pupils' and teachers' interviews provided meaning and possible explanations of the statistical findings (Petridou & Williams, 2007). The fact that the statistically significant relationship of anxiety and motivation reported by both Infit and Outfit single-level models became non-significant on re-analysis with multilevel models is a suggestive result (Petridou & Williams, 2007). With anxiety data we received when we analyzed our student and parent surveys. Our students and parents said that students experience a high

level of emotion before during and after testing. They reported high levels of feelings of nervous, stressed and confused.

Chapter 3

The Solution Strategy

Review of the Literature

Test taking anxiety among students can be attributed to many factors. Those that teachers can control are the types of assessments they give to students and the test taking strategies they teach their students. The three teacher-researchers, after analyzing the articles and documentation regarding test-taking anxiety among students, focused on collaborative test taking as a possible solution to overcoming the anxiety many students experience before taking a test.

Types of Assessments.

With the diverse ethnic background in the classroom today, it is very important to implement a learning process so that each student will be held accountable to illustrate their learning process and how it will progress (Britton, 2011). As a part of this process, it is important to set goals to determine exactly what we want students to learn (DuFour & Marzano, 2009).

After establishing what needs to be accomplished, the solution is straightforward but not necessarily easy to implement, and schools actually vary on how to measure the content of each assessment on what is taught. Some opt to use district made or school made tests that measure how the content is taught in a specific course. Marazano's preferred option was to develop reports cards that tract a student's performance on specific knowledge and skills which might report on standards or more specific learning objectives (Marazano, 2003).

Classroom assessments teach how to evaluate each student's learning difficulties and give feedback to ways to help them by identifying what they have learned and ways to improve

on what they need to learn (Bloom, Hastings, & Madaus, 1981, as cited in Guskey, 2005a). When assigning work to be done in an assessment, value should be placed more on quality than on quantity (Younglove, 2011). It is sometimes good to allow the students to choose how to show what they have learned, like Power Points or Wikis as they give the student more confidence about being assessed (Britton, 2011). Verbally questioning is another way of assessing the student's understanding and reasoning. By determining whether they have correct or incorrect it shows their reasoning skills and if there is any flaws in how they arrived at an answer (Burns, 2005, as cited in Using Classroom Assessment, 2006).

Formative Assessments.

The process that allows a teacher to see their students' progress and adjust strategies used during their instruction is called formative assessment (Younglove, 2008, as cited in Younglove, 2011). Teachers incorporate formative assessments so that it mirrors the summative assessment which allows them to gather data on student learning as well as make decisions on where to go next with instruction (Doubet, 2012).

A good way to provide students with the feedback they need on their learning progress, is to employ a variety of formative assessments which will include paper and pencil quizzes, projects, essays, oral presentations, or skill demonstrations (Guskey, 2005a). An example of a formative assessment that can be easily determined is using three quick questions on an index card which will allow the teacher to determine the student's knowledge and retention of the material (Britton, 2011). A teacher may elect to record the result of the formative assessments, but are not required to use them to calculate grades, which may elevate a students' anxiety (Britton, 2011).

Alternative Assessments.

Math journals can help to identify students' strengths and/or weaknesses. After reading the students' journals, teachers get better insight to determine what resources best benefit the learners. Journals become a good learning tool between a student and a teacher (Burns, 1995, Burns & Silby, 1999, Goldsby & Cozza, 2002, McIntosh & Draper, 2001, & Williams & Wynne, 2000, as cited in Kostos & Shin, 2010, p. 225).

In math journals, teachers ask students questions that require them to show their thinking when solving a math problem to increase better math communication (Kostos & Shin, 2010, p. 224). The writing and correct vocabulary also enhances a student's mathematical thinking (Kostos & Shin, 2010). Math communication also encourages the correct use of math terminology, which helps students clearly communicate their understanding of mathematical concepts (Kostos & Shin, 2010, p. 224). While developing students' mathematical thinking, mathematical communication can encourage students to explain how they obtained an answer by describing their thinking process (Burns & Silbey, 1999, & Fried & Amit, 2003, as cited in Kostos & Shin, 2010, p. 223). When students are asked to write their explanation for determining the correct answer, they are more likely to develop an understanding of the concept. Journal writing is a very important step in learning math and also encourages the correct use of mathematical vocabulary (Tuttle, 2005, as cited in Kostos & Shin, 2010, p. 225).

Cartoons are an effective way to incorporate a summative assessment because they are relevant to the student's interests, promotes observation, encourages hypothesis and inductive thinking skills, and allows them to apply scientific knowledge in their real life. It also stimulates their curiosity and creativity. This allows teachers to assess their student's understanding in an authentic way (Song, 2008).

When starting a new unit, a concept cartoon showing three or four different ideas is given to a group of three or four students. The students work together to discuss each idea and then as a group come to an agreement as to what they think the cartoon is representing. They can use a scientific rationale when they present their initial idea to the class (Song, 2008).

A good way to contradict the scientific principle that is being taught is to use cartoon cuts like Wile E. Coyote as a sample. Students can reflect on the cartoon and offer proof by using scientific concepts that they are learning to negate what is represented in the cartoon. Teachers also take advantage of this kind of activity to determine the students' levels of understanding (Song, 2008).

While working in their small group and using the scientific knowledge they have accrued, they show an alternative to the original idea by showing what should happen resulting in each making their own strip to come up with a story that explains both the story and the science (Song, 2008).

In addition, teachers have incorporated the use of portfolios to help students reflect on work they have created (Kilbane & Milman, 2003, as cited in McLeod & Vasinda, 2009, p. 30). Teachers started using digital portfolios as an additional way to capture and enhance the learning of elementary students in a public school setting. It provided those students with both voice and choice in what they considered important artifacts of their learning, and as an opportunity to communicate this learning to their parents (McLeod & Vasinda, 2009, p. 30). This helped students create learner philosophy statements where they could reflect on themselves as to how they learned best. Teachers guided them through this reflective process using an interview protocol to conduct peer-to-peer interviews, which we digitally recorded (McLeod & Vasinda,

2009, p. 31). By using these digital portfolios, it also gave the parents a glimpse, or window, into their child's classroom (McLeod & Vasinda, 2009, p. 36).

Since most students would not put textbooks or worksheets in their portfolios, it pushed teachers beyond those stock resources and made them come up with more creative projects to push their students by incorporating "hard fun" (McLeod & Vasinda, 2009, p. 30). It is important that educators consider "hard fun" in their curriculum, which is work that is fun even though it is hard, not in spite of being hard. This increases motivation in the student by offering multiple ways to document their learning (Papert, 2002, as cited in McLeod & Vasinda, 2009, p. 30).

The "hard fun" helps students reflect on their work in three ways. It reflects on the content of their submissions, themselves as a learner, and the quality of their work. It also allows the parents and teachers to reflect on the students' portfolios (McLeod &Vasinda, 2009).

Besides the digital portfolios, students used the electronic portfolio process. It was fun for them and it allowed them to make choices while using digital media (McLeod &Vasinda, 2009). Not only did the students find this interesting, teachers also found the process satisfying as it gave them insights to the students as learners by their selection of artifacts. It also kept the students more engaged, reflecting more, and taking ownership in their education (McLeod & Vasinda, 2009, p. 36).

Instructional Strategies.

At the beginning of the school year, it is essential that the classroom establish certain rules of what is expected in the classroom. These rules will characterize the students to respect and trust each other so that students can be reflective about learning without any threats to their self-esteem (Heritage, 2009, p. 30). The rules that are established at the beginning of the year

will improve the students' confidence, attendance, classroom involvement, and positive attitudes, which will have a positive effect on the mastery learning (Guskey & Pigott, 1988, as cited in Guskey, 2005a).

At the beginning of the year, teachers need to work in partnership with the students which will let them know what they are learning and why. This can be accomplished by implementing the strategies they have learned from self assessment and identify an instructional strategy that they can use to help them adjust their learning (Heritage, 2009). Many urban schools have used the Standards Based Change Process with much success. This process involves developing grade level benchmarks, student-focused "I can" statements, and associated assessments (Raphael & Mooney, 2008, as cited in Teale, 2008, p. 360).

A variety of teaching strategies should be used to reach students who have not grasped a new concept after the initial lesson. Whether it is using manipulatives or some other kinesthetic activity, or pairing students who are both high and low achieving for cooperative activities, the ultimate goal is to provide students with a variety of teaching strategies to improve their learning and understanding (Using Classroom Assessment, 2006). Spending more time in early units teaches the students how to master concepts and skills which actually helps teachers cover just as much material had they used more traditional approaches as the students are better prepared for the more advanced units (Block, 1983; Guskey, 1983, 1987, as cited in Guskey, 2005a). Therefore, teachers should make sure that the classroom instructions be diversified and differentiated to meet the individual learning styles and needs of all students (Bloom, 1964, as cited in Guskey, 2005a). By focusing on higher learning goals like problem solving, deductive reasoning and drawing inferences makes learning more effective (Guskey, 1997, as cited in Guskey, 2005a). Another good strategy that can help during instruction and reviewing for a test

to help ease students' anxieties is peer tutors, collaborative work, jigsaws, fishbowls, and study guides (Younglove, 2011).

When setting up assessments of a student's learning, the students should be involved in the assessment process. It can be accomplished by providing rubrics outlining what is expected of them and how they will be evaluated. Teachers should also show examples of work that is well done or needs improvement so that students will know what needs to be done to succeed and their work can be improved next time (Stiggins, 2004, as cited in Using Classroom Assessment, 2006). If a concept or skill is important enough to assess, it is very important that enough time be allowed to teach and justify assessing it (Guskey, 2003).

After students perform well on the initial assessment, they show that they have mastered the concept or skill need to be more challenged by providing them with enrichment activities such as special projects, academic games, or more complicated problem-solving tasks (Bloom, Hastings, & Madaus, 1981, as cited in Guskey, 2005a). By spending more time in early units teaching students how to master concepts and skills, teachers are able to cover just as much material had they used more traditional approaches, because students are better prepared for the later more advanced units (Block, 1983; Guskey, 1983, 1987, as cited in Guskey, 2005a).

It is a fact that establishing a table of specifications can improve the quality of a teacher's classroom assessments as well as the quality of their teaching (Guskey, 2005b). By setting up tables of specifications, it helps teachers break down standards into meaningful learning goals, which help students understand what is expected of them and what they are expected to learn. It is also a good guide to teachers, which helps with their consistency in teaching across the board (Guskey, 2005b).

It is very important that when setting up the table of specifications a teacher answers all of the questions that need answering. The basic set-up needs to show what the new concepts are, what content or material the students are expected to learn, and what students are going to be able to do with what they learn (Guskey, 2005b).

Teachers should make sure the tables are broken down into manageable categories that work for a variety of subject areas. It should include knowledge of terms, facts, rules and principles. It should also include knowledge of processes and procedures, ability to make translations, ability to make applications, and skill in analyzing and synthesizing (Guskey, 2005b). There are many advantages to these tables that teachers can connect to their instructional activities and standards. Tables done this way help students learn how to apply learned basic concepts in solving more complex problems. They also help teachers devise classroom assessments that will show growth in the student's learning process which helps reflect on the knowledge acquired, important skills learned and their abilities in relation to the standards that are being taught (Guskey, 2005b).

At the beginning of a unit, the students are given study questions, which are broad topical questions from a unit of study. This enables the students to research and write several drafts of their responses to the questions and also allows the students time to figure out the key concepts (Prouty, 2006). The advantage to giving students the study questions at the beginning of the unit lets them know what the concepts are that they will be learning throughout the unit and what they are expected to learn (Prouty, 2006).

Before students start their drafts to the responses to the questions, journal entries are used to help find key vocabulary that will be needed for their answers. At great length, the class discusses the vocabulary that should be included in the answers. The students are required to

have their first drafts completed within one class period and two homework days (Prouty, 2006). After completing their first draft, the students' work will be reviewed by a peer. Then as a class, the good responses are shared with the class as a model for what is expected, and the rubric is reviewed again. The students will be allowed several days after the review to complete their final drafts (Prouty, 2006).

This type of formative and summative assessment will give a more comprehensive grade when used in conjunction with tests and projects for the unit (Prouty, 2006).

When a student's first attempt at something is not successful, they should not be discouraged, as this will help them learn from their mistakes and gain insight on how to improve their performance. Their mistake is the beginning of their learning process (Wiggins, 1998, as cited in Guskey, 2003). By giving students a second chance to correct their mistakes demonstrates success in learning (Guskey, 2003). Offering to give them a second chance will give them a better understanding and proficiency. A surgeon performs his first surgery on a cadaver and a pilot spends hours on a flight simulator so they can learn from their mistakes (Guskey, 2003), students should be offered the same opportunity to correct their mistakes.

Also, it is very important that teachers give corrective instruction to make sure that they use different methods to accommodate student's different learning styles (Sternberg, 1994, as cited in Guskey, 2003). Teachers need to collaborate with each other to share ideas, material and expertise to help make sure they have effective correctives (Guskey, 2001, cited in Guskey, 2005a).

In addition, teachers should coordinate their test scheduling so students are not over-whelmed with too many tests in one time period (Salend, 2011b). Test scheduling also affects a students' performance. Teachers who do frequent testing allow students to learn specific

content. This allows the teacher to tell students what they should stud and it gives students enough time to complete tests, and more accurately assess mastery (Salend, 2011b).

Test Taking Strategies.

It is important that teachers help and encourage students to create a study good schedule, impress upon them to allow enough time to study, and know what to study first and how to study (Salend, 2009, as cited in Salend, 2011a). Teachers should also point out effective test taking skills to students by emphasizing to do the easier items on the test first, which will help build their confidence for the remainder of the test (Salend, 2011a).

Teachers should discuss and review materials that will be on the test the day before to relieve some stress the following day. The students will be better prepared for the individual testing because of the discussion and review. This will allow the students to identify areas of deficiency in their own learning (Hurren, Rutledge & Garvin, 2006).

Even if the teacher warns students that the exam they will be taking is difficult, it will be beneficial to some students but harm others. Prior research indicates that giving early warnings about the difficulty of the exam will help give students time to study harder and not put more anxiety on them as exams are distributed (Weber & Bizer, 2006). Prior to handing out the tests, teachers should give clear directions to help reduce the anxiety. With proper directions, it may even make taking the test more enjoyable for the students (Salend, 2011b). As well as proper directions, teachers can impress on the students to “take a deep breath” to help test takers stay focused, calm and motivated (Salend, 2011b).

It is important that teachers provide students with good study guides by pointing out the content and format their objective of the test (Walker & Schmidt, 2004, as cited in Salend, 2011a). Students interact with fun ways to review the material. Teachers can create fun games

and flashcards. Having the students work with a friend by creating or writing review sons are also helpful (Lagares & Connor, 2009 & Rozalski, 2007, as cited in Salend, 2011a).

Recent surveys show that with today's technology, students feel less stress or anxiety when taking tests online in a location other than the classroom (Stowell & Bennett, 2010).

Test Design.

When preparing a test, teachers find that numbering test pages helps them give clearer directions as well as helping students locate and ask questions about specific items (Salend, 2011b). Also, teachers find that by simply allowing students to write their answers on the actual tests and not on a separate sheet of paper have alleviated stress and anxiety (Walker & Schmidt, 2004, as cited in Salend, 2011a).

Teachers should focus on what the students know, understand, and are able to do when creating assessments (Doubet, 2012). By being familiar with what the test is asking of them and the format of the test helps relieve the students' anxiety during testing. (Putwain, 2008).

When teachers cover the main topics and concepts adequately, students have a better understanding of what the testing format will be (Salend, 2011b). Good tests address what was taught and how it was taught (Salend, 2011b). These practices will help teachers improve the premade tests they receive from textbook publishers (Salend, 2011b).

Tests should give the students an appropriate amount of space to construct their responses to the questions (Salend, 2009, as cited in Salend, 2011b).

It has been determined that students feel less anxious about a test when they have some control over its content. An easy way to solve this is to let students write questions for a test or quiz (Salend, 2011a).When assessing a child's literacy knowledge and skill, it is important to

make sure everything counts. You need to put assessment measures in place to cover all facets of learning (Teale, 2008, p. 360).

It is important to vary practices for composing tests. Best practices will include using multiple choices, true-false and essay items (Salend, 2009, as cited in Salend, 2011b). Multiple choice questions provide context for answers, relevant data and only one major point (Salend, 2011b). True-False questions only assess the students' knowledge of the fact and concepts. (Salend, 2011b).

When using essay questions, it is very important to set specific lengths and time limits as well as what specific criteria being used in evaluating their responses (Salend, 2011b). It has been proven that essay writing helps students to improve their skills, increase their level of thinking as well as their creativity and problem solving. By using essays it promotes their writing skills (Salend, 2011b).

While preparing all tests, a teacher must pay attention to structure. It must have one clear answer and missing information must be meaningful. Students can use variations on the answers, but it should be pointed out what is acceptable in advance. Another way to clarify the choices is to supply a work bank to complete answers (Salend, 2011b).

It is important that when preparing tests, teachers should present items in an intuitive, predictable, and numbered sequence as it helps students transition from one test question to the next and lessens the likelihood that they will skip items (Salend, 2011a). Another way to help enhance the students not skipping an item is grouping similar question types together and enclose directions in text boxes (Salend, 2011a).

Using the same language to present test directions and items as used during instructional activities will also help students (Salend, 2011a). Another way is the stylistic feature, which

includes using boldface and italics to highlight brief parts of sentences to focus the students' attention to that section. (Salend, 2011a). Staying with the same type-faces or fonts is a must as mixing up fonts will confuse the students Salend, 2011a).

Teachers should create common assessments by using teams. They should incorporate rubrics in this process. (DuFour & Marzano, 2009). Teachers should continue to evaluate their efforts to create student friendly tests by examining to see if students improve their performance. Teachers should communicate with the students to find ways to make them more comfortable while taking tests, which are helpful with the assessment process (Salend, 2011b).

A good assessment plan will provide teachers and administrators with specific instruments and procedures to work with. It will provide professional development to help teachers understand relationships between assessment and teaching make sure all personnel use the proper screening, diagnosing, progress monitoring, and outcome assessments, and all other steps necessary for a good outcome as well as enabling teachers to interpret and use results from these assessment to differentiate and improve instructions (Teale, 2008, p. 361).

There are many resources that help examine curriculum by setting up state or provincial standards. District guidelines are established to assess a students' progress on a district, state provincial or national basis. Rubrics will show students preferences, quality of work and recommendations or standards for workplace skills (DuFour & Marzano, 2009). Teachers should allow time for collaboration on their routine workweek as part of their curriculum (DuFour & Marzano, 2009).

Collaborative Testing.

To make testing a more meaningful educational experience and promote learning as well as less test anxiety, collaborative assessments were created (Lambiotte, Dansereau, Rocklin,

Fletcher, Hythecker, Larson, et al., 1987, Lusk & Conklin, 2003, Mitchell & Melton, 2003, Slusser & Erickson, 2006, & Zimbardo, Butler, & Wolfe, 2003, as cited in Haveryan & Barnett, 2010). It has been proven that taking tests collaboratively help students perform better on them as well as on assessments (Ioannou & Artino, 2010). When students are able to be assessed collaboratively, it has been shown that they focus more on the content rather than memorizing. They have less anxiety and have a fun learning experience (Hodges, 2004, Russo & Warren, 1999, Ioannou & Artino, 2008, Kwok, Ma, Vogel, & Zhou, 2001, Stearns, 1996 as cited in Ioannou & Artino, 2010). Teachers and students alike see collaborative assessment as fair even with students discussing and sharing answers (Ioannou & Artino, 2010). This process has given students more confidence, and they have achieved higher scores (Ioannou & Artino, 2010).

Taking tests with another student helps build up the knowledge of the whole group (Iannou & Artino, 2010). Group testing has halped students retain the content for longer periods as compared to individual testing (Ioannou & Artino, 2010). Students change roles in group testing. First they all are given individual copies of the test. Then they are assigned roles as either a reader or a judge that gives them different perspectives on the test as they play each role (Hurren, et al., 2006). To prevent problems with this team testing, detailed outlines were established by which students would take the tests (Hurren, et al., 2006).

The possibility of formatting or preparing tests collaboratively with peers will help students' achievements as opposed to taking the test with one peer (Haveryan & Barnett, 2010). In some cases, students have recommended that they should take tests on their own first. After that, they will organize in groups to evaluate and discuss their answers to determine if any changes are required (Ioannou & Artino, 2010).

Groups should be designed on an achievement and friend factor. Three or four groups should be created and students that are friends should be put in different groups so there will be no interference with team testing procedures (Hurren, et al., 2006).

Within each group, students are given individual copies of the test and are assigned roles. These roles consist of a "reader" or one of the "judges." Each student will be assigned to play each role (Hurren, et al., 2006). The "judge" has the opportunity to express his or her thoughts on the item in questions (Hurren, et al., 2006).

When the process has been finished, students can give two options on the response to the item. If they agree, they mark their response and continue to the next item. If a disagreement on an item is expressed, each group member could mark what they felt was right or wrong on the item and then would proceed to rest of the items. (Hurren, et al., 2006).

It is the teachers responsibility to pay close attention to the discussion, the creativity and originality of ideas as well as which students are participating. It is important that teachers make sure all students are actively involved and if not they will have to do an alternative assessment alone (Hurren, et al., 2006).

It also helps when teachers alternate testing activity by group-testing one day and more traditional testing the next. The teachers will combine the scores for one overall grade (Hurren, et al., 2006).When offered the opportunity to using collaborative testing, students were genuinely excited and their motivation increased. The students that had normal test anxiety were less stressed and actually were engaged in the testing process (Hurren, et al., 2006). With collaborative testing, students work on open-ended tasks. This group interaction boosts their confidence as well as increasing their knowledge with less stress (Michaelson & Sweet, 2008, as cited in Salend, 2011a).

Students given the opportunity to do test collaboratively expressed that they were less stressed, were more motivated and had an overall positive experience (Haveryan & Barnett, 2010). They reported that with collaborative4 assessment, they understood the material better due to the group discussions with their peers (Ioannou & Artino, 2010).Many students have experienced higher confidence and self-esteem from collaborative assessments. They also expressed that they retained the information longer as well as increasing their thinking skills. Teachers also noticed a higher student achievement (Johnson & Johnson, 1989, 1999, & Slavin, 1989, as cited in Ioannou & Artino, 2010).

Records show that in 2002 and 2003 there were only marginal differences in average scores (59.88% - 2002 and 59.44% - 2003). In 2004, the group testing yielded an average score of 79.70%, which showed considerable improvement in the scores (Hurren, et al., 2006).

When teachers implement this collaborative assessment, they should not be disappointed or disillusioned. After a few trials, teachers will see students get more comfortable and the learning process begins to flow. By giving it a chance, teachers will see team testing will change students' attitudes in a positive way (Hurren, et al., 2006). All in all, group testing has been proven to help relieve a students' test anxiety and even increases their creativity and critical thinking (Hurren, et al., 2006).

Feedback.

Feedback was designed for three reasons. It reinforces what students were expected to learn, it identifies what they learned, and it allows them to see what learning needed improvement (Guskey, 2005, as cited in Using Classroom Assessment, 2006). Teachers should give feedback in a timely manner whether in the form of verbal, written, or instructional (Guskey, 2005, as cited in Using Classroom Assessment, 2006). It is also helpful for the

teachers to get the students to use strategies rather than giving solutions to problems at hand (Heritage, 2009). Teachers must be aware of students' anxiety whether physical or behavioral and that it may be necessary to discuss these issues with the students or their families around the assessment time (Peleg, 2009 & Prevatt, Wells, Li, & Proctor, 2010, as cited in Salend, 2011a). Also, after students have received their grades, teachers must have them promptly reflect on their performance. To help with this task, the teachers may give them sentence starters (Salend, 2009, as cited in Salend, 2011a).

Project Objective and Processing Statements

As a result of collaborative testing and alternative test designs, during the period of August 21, 2012 through December 21, 2012, the students of the three teacher-researchers had a better understanding of classroom material and feel more comfortable before, during and after taking a test. The teacher-researchers needed to do the following to implement the intervention.

- The teacher-researchers designed pre-tests for each unit of study.
- The teacher-researchers designed three levels of differentiated post-tests for each unit of study that was given to students based on their pre-test results.
- While designing pre- and post-tests, the teacher-researchers used a variety of test questions including, but not limited to, multiple choice, true/false, matching, fill in the blank, short answer, and essay.

Project Action Plan

The following timeline outlines the implementation of the research project. Of the 16 weeks allowed for the project, 12 weeks of the interventions took place between September 4, 2012 and December 8, 2012. The remaining four weeks, August 21, 2012 through August 31, 2012 and December 10, 2012 through December 21, 2012, were used for pre- and post-documentation, respectively.

<u>Prior to Documentation</u>

August 13, 2012 through August 17, 2012

- Translated student and parent surveys, cover letter, and consent forms into Spanish.
- Copied student, parent and teacher surveys, cover letter, and consent forms.
- Teacher-researcher B sent cover letter and consent form home on August 15, 2012.
- Teacher-researcher B collected consent forms on August 17, 2012.

Pre-Documentation

Weeks 1 and 2: August 20, 2012 through August 31, 2012

- The teacher-researchers asked administration for the necessary discipline and test data between August 21, 2012 and August 31, 2012.
- The teacher-researchers sent cover letter and consent form home on August 22, 2012.
- The teacher-researchers collected consent forms on August 24, 2012.
- Teacher-researcher B sent home parent surveys on August 24.
- Passed out and collected student surveys August 27, 2012.
- Each teacher-researcher kept their student surveys in a locked cabinet in her classroom.
- Teacher-researchers A and C sent home parent surveys on August 27, 2012.
- The teacher-researchers distributed the teacher surveys on August 29, 2012.
- The teacher-researchers collected the parent and teacher surveys on August 31, 2012.
- In preparation for the intervention, the teacher-researchers created and copied pre-test materials for the first units of instruction.
- Teacher-researcher B distributed the pre-test for Science unit 1 and Social Studies unit 1

Intervention Begins

Week 3: September 4 – 7, 2012

- Analyzed the data received from the administrators, parent, student, and teacher surveys.
- Teacher-researchers A and C distributed the pre-test for unit 1 to students and analyzed the results.
- Based on the results of the pre-test, teacher-researchers differentiated instruction and created differentiated post-tests.
- Taught test taking strategies, including collaborative testing.

Week 4: September 10 - 14, 2012

- Teacher-researcher B distributed post-test for Science unit 1
- Students of teacher-researcher B participated in a collaborative test taking session.

- Teacher-researcher B analyzed the results of the post-test.
- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 5: September 17 – 21, 2012

- Teacher-researcher B distributed post-test for Social Studies unit 1
- Students of teacher-researcher B participated in a collaborative test taking session.
- Teacher-researcher B analyzed the results of the post-test.
- Teacher-researcher B distributed the pre-test for Science unit 2
- Based on the results of the pre-test, teacher-researcher differentiated instruction and created differentiated post-tests.
- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 6: September 24 – 28, 2012

- Teacher-researcher B distributed the pre-test for Social Studies unit 2
- Based on the results of the pre-test, teacher-researcher differentiated instruction and created differentiated post-tests.
- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 7: October 1 – 5, 2012

- Teacher-researcher B distributed post-test for Science unit 2
- Students of teacher-researcher B participated in a collaborative test taking session.
- Teacher-researcher B analyzed the results of the post-test.
- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 8: October 9 – 12, 2012

- Teacher-researchers A and C distributed post-test for unit 1.
- Students of teacher-researchers A and C participated in a collaborative test taking session.
- Teacher-researchers A and C analyzed the results of the post-test.
- Teacher-researcher B distributed the pre-test for Science unit 3
- Based on the results of the pre-test, teacher-researcher differentiated instruction and created differentiated post-tests.

Week 9: October 15 – 26, 2012 (week of parent/teacher conferences and institute days)

- Teacher-researchers B distributed post-test for Social Studies unit 2.
- Students of teacher-researcher B participated in a collaborative test taking session.
- Teacher-researcher B analyzed the results of the post-test.
- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 10: October 29 – November 2, 2012

- Teacher-researchers B distributed post-test for Science unit 3.
- Students of teacher-researcher B participated in a collaborative test taking session.
- Teacher-researcher B analyzed the results of the post-test.
- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 11: November 5 – 9, 2012

- Teacher-researcher B distributed the pre-test for Science unit 4.
- Based on the results of the pre-test, teacher-researchers differentiated instruction and created differentiated post-tests.
- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 12: November 12 – 20, 2012 (weeks including Thanksgiving Break at each site)

- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 13: November 26 – 30, 2012

- Continued differentiated instruction and teaching test taking strategies.
- Continued teaching concepts, vocabulary, and content aligned with the unit of study.

Week 14: December 3 – 7, 2012

- Teacher-researchers A and C distributed post-test for unit 2.
- Students of teacher-researchers A and C participated in a collaborative test taking session.
- Teacher-researchers A and C analyzed the results of the post-test.

- Teacher-researcher B distributed post-test for Science unit 4.
- Students of teacher-researcher B participated in a collaborative test taking session.
- Teacher-researcher B analyzed the results of the post-test.

Post-Documentation

Weeks 15 and 16: December 10 – 21, 2012

- Distributed and collected student surveys on December 17, 2012.
- Analyzed the results from student surveys.
- Each teacher-researcher kept their student surveys in a locked file cabinet in her classroom.
- The teacher-researchers asked administration for the necessary discipline and test data on their students.
- Teacher-researchers compared data from pre- and post-tests for each unit and interpreted results.

Methods of Assessment

The three teacher-researchers used a student survey to gather information on how students prepare for and respond to tests. Through the survey the teacher-researchers discovered what students were doing and not doing to prepare for tests and how tests made them feel. The survey was given to the same 74 students during the weeks of August 27, 2012 and December 17, 2012 both before and after the interventions to see if there were any changes in how they viewed and prepared for tests.

Chapter 4

Project Results

The teacher-researchers chose to explore the area of test anxiety in students. In order to document the problem students, teachers, and parents were surveyed to describe their feelings about test taking. In order to alleviate this issue among students, the classes participated in collaborative test taking, practicing test taking strategies and taking differentiated tests. Sixty-six students in grades five through seven participated in the research. The students in fifth grade received these interventions in science and social studies. While the sixth and seventh grade students received this in their reading intervention classroom. The research was conducted between August 20, 2012 and December 21, 2012.

Historical Description of the Intervention

Description.

During Weeks 1 and 2 (August 20th – August 31st, 2012), the teacher-researchers sent cover letters and consent forms home with students in order to inform them and their parents of the research being conducted. The teacher-researchers also distributed and collected student, parent, and teacher surveys. Many students seemed interested in the research and how it could help them. Additionally, many parents responded quickly to the survey. Teacher-Researcher B also gave pre-tests in science and social studies during this week. Teacher-Researcher B involved the students in hands on activities for science about categorization of shoes and people, as well as the use of microscopes to analyze the cells of onions and other classroom objects. The students were highly motivated to examine erasers, insects, and iron filings up close and personal. Towards the end of week 2, Teacher-Researcher B gave the students their first collaborative quiz in science. Teacher-Researcher B discussed the importance of working

collaboratively with group members, and that all members of the group needed to contribute to the process. She noticed, particularly with the students who took the modified quiz, that most of the work was being done by only two members of the group, and the other members were just changing their answers and not contributing at all. The teacher-researcher took note of this to restructure groups for the next quiz to make sure that there was a more fair distribution of work.

The following week, the first week of the intervention, September 4th – September 7th, 2012, the teacher-researchers distributed their pre-tests for the first unit of study. Based on the pre-test results, they were able to begin thinking about how to differentiate instruction and start teaching test taking strategies, including collaborative testing. Students took the pre-tests seriously despite it not counting towards their grade. Also, during this week, the teacher-researchers were still waiting for teachers to return their surveys.

In the next week of intervention, September 10-14, 2012, the teacher-researchers created Excel sheets to collapse the data from each of the surveys given. They also created documents to analyze and display the data to document pre- and posttest data. Teacher-Researcher B had students involved in multiple hands-on experiments and activities that correlated with the differentiated lessons based on the pre-test data (Appendix D). Students began an observation log for a mold experiment and participated in a scavenger hunt looking for clues to answers about plants as an introductory activity to engage students in the upcoming units. For social studies, Teacher-Researcher B designed flashcards for students to use in order to study for their first test in addition to playing review games. Students were given their differentiated social studies tests that week. Teacher-Researchers A and C grouped students based on their pre-test results in order to differentiate lessons. This allowed students to receive more one-on-one instruction by working in small groups daily.

During the third week of intervention, September 17-21, 2012, the teacher-researchers continued each of the interventions. Teacher-Researchers A and C introduced using colored highlighters in order to organize information in a text when finding the main idea and details. Students began recognizing patterns in text organization during this week, but still wanted reassurance when working independently. Teacher-Researcher A's sixth-graders started to highlight literary elements in nonfiction text. This allowed students to better visualize how a text is structured and how the details explain the main idea. The sixth graders then started to use timelines to keep track of important events. Teacher-Researcher B had students collaborate on their social studies tests that were differentiated. Students were placed in groups between three and four based on their pre-test results. Students were more successful with their collaboration on this Social Studies test. There were more equitable groupings, and students had a stronger comfort level with the material, which was evidenced by animated conversations and strong test scores. Students were also given a pre-test for their next social studies unit (Appendix E) as well as a differentiated quiz in science.

In the fourth week of intervention, September 24-28, 2012, Teacher-Researcher A's sixth graders completed various differentiated activities for sequencing (Appendix F). Teacher-Researcher C gave students differentiated tests on their first unit based on their pre-test results. Students took the test individually one day and were grouped to test collaboratively the following day. Students were confused about why there were three versions even after the reasoning was explained to them. Students felt that different versions of the assessment were unfair. After Teacher-Researcher C had a longer conversation with the students about the different tests, students understood the reasoning, but still were fixed on the fact that some were "easier" than others. Nevertheless, the students took the test that was required of them. Teacher-Researcher

B's students collaborated on the science quiz in groups of three of four students. Students were then given the pre-test for the next science unit. With each collaboration, students were working constructively within their differentiated groups, showing an understanding and increased confidence level in the collaborative process.

In the fifth week of intervention, October 1-5, 2012, Teacher-Researcher A introduced more study skills and described collaborative group roles (Appendix G). Teacher-Researcher B continued instruction in the social studies unit and had students review for their end-of-unit science test playing review games. Teacher-Researcher C analyzed the results from the post-test of the first unit. Students were given a pre-test for the next unit and Teacher-Researcher C recorded and analyzed the results in order to group students for differentiation (Appendix H).

In the sixth week of intervention, October 9-12, 2012, Teacher-Researcher A gave all students differentiated post-tests for the first unit (Appendix I). Students were then grouped in order to collaborate on the tests the following day. Teacher-Researcher B gave students a differentiated science test and followed the collaborative testing process. Teacher-Researcher B continued to differentiate instruction and practice test-taking strategies with students. Strategies included, but were not limited to, circling key words in the question, reading the questions before reading the passages to familiarize themselves for key ideas to be looking for, and highlighting key information in the passage. These strategies were applied to the reading and math curriculum as well as social studies and science. Students seemed to be struggling to focus and stay on task in their new groups. Teacher-researcher C found that many students showed growth between their pre and post tests for the first unit. Also, based on the pre-test for the unit on story elements, many students already new the definitions of the elements, but had trouble when applying them to a text.

In the seventh and eighth weeks of intervention, October 15-26, 2012, the teacher-researchers continued with each of the interventions. During these weeks, the teacher-researchers had parent-teacher conferences as well as institute days. Teacher-Researcher A gave pre-tests for the next unit. Both sixth and seventh grade classes continued highlighting for main idea, details, and story elements. Teacher-Researcher B gave a pre-test in science. In socials studies, students created flashcards to help students study for their unit test. Students received A's and B's on their post tests after collaboration occurred. They were highly motivated after succeeding and seeing the positive results. Teacher-Ressearcher C continued to differentiate instruction, and had students practice and apply story elements using various graphic organizers. The graphic organizer seemed to help students not only as a visual, but students were less intimidated with the amount of information they needed to take from the text.

In the ninth and tenth weeks of intervention, October 29-November 9, 2012, Teacher-Researcher A continued creating differentiated lessons that focused on the above mentioned skills. Students were able to choose texts at their reading level and continue to highlight them while also using graphic organizers to demonstrate understanding of main idea and details and story elements. Teacher-Researcher B had students participate in review games in preparation for their social studies quiz. Students enjoyed dry erase board review games as they could earn points for their group and candy rewards. Students then took their next differentiated test and collaborated on it the following day in groups (Appendix J). Students seemed to fully understand the concept of how to work as a group and held other members of their accountable if they did not contribute to the collaborative group effort. As a concluding activity for the Revolutionary War, students were given a project, an ABC book, hat integrated all of their knowledge from the unit. The students were very excited to apply all the knowledge they had

acquired over the last two months. They really felt like experts in the area of the Revolutionary War. For science, students continued practicing note-taking skills and hands-on activities to reinforce concepts. Teacher-Research C continued to differentiate by having students choose a graphic organizer to use, play review games, and review a movie using story elements (Appendix K). Students were very surprised to discover that story elements are present in movies as well as books. They also commented that it is much more difficult to analyze a movie because they were not able to go back and watch a scene again if they were confused. Whereas, when reading a story, they are able to reread parts if needed.

In the eleventh, twelfth, and thirteenth weeks of intervention, November 12-30, 2012, the teacher-researchers had a shortened week due to Thanksgiving break. Teacher-Researcher A created two game show reviews. Students were engaged and excited to illustrate the skills they had mastered. Students played in their collaborative groups to continue working together throughout the unit. Teacher-Researcher B had students continue working on their social studies project. All of the teacher-researchers gave students differentiated tests and had them work collaboratively the following day to complete them. An example of Teacher-Research C's tests can be found in Appendix L. Teacher-researchers noticed that students were verbalizing their high comfort levels with test-taking and seemed excited to see their growth since their pre-tests.

During the weeks of post-documentation, December 10-21, 2012, Teacher-Researchers A and C distributed and collected student surveys and compiled the data.

The teacher-researchers analyzed the results and compared the pre and post-tests data for each unit. Due to newfound health issues, Teacher-Researcher B was unable to collect any post-documentation student data until January, 2013.

Interventions.

Frequently students are asked to take tests that either are too difficult or too easy based on their pre-existing knowledge and learning styles. The teacher-researchers decided to use a pre-test in order to alleviate this concern. A pre-test illustrated what each student already knew and what types of test questions best showed this knowledge. Students who performed well on the initial assessment, in this case the pre-test, and showed they had mastered the concept, should be provided with enrichment activities such as special projects, academic games, or more complicated problem-solving tasks (Bloom, Hastings, & Madaus, 1981, as cited in Guskey, 2005). Post-tests were differentiated to meet the individual learning styles and needs of all students. This way, all students were challenged and had the opportunity to experience success in the classroom.

Because each student learned differently, the design of tests needed to include a variety of question forms that allowed students to have a more complete understanding of the material learned during the course of the unit. A valid test was made to cover the main topics, concepts, and skills taught during the time preceding the test (Salend, 2011). In creating good test items, the teacher-researchers addressed not only what was taught, but also how it was taught. The manner in which students were taught the material naturally coincided with how they were assessed. When instructional activities corresponded with assessments, students were able to show what they had learned more accurately because they knew what to expect on the assessment. Thus, their anxiety level decreased.

Collaborative assessments were created in order to make test taking a more meaningful education experience, promote collaborative learning, and reduce test anxiety. Collaborative groups were based on the results of the initial pre-tests that were given at the start of each unit.

When using collaborative testing in the classroom, students first completed the assessment on their own. On the following day, students worked with a group of their peers to discuss their answers with the option to make improvements to their test before turning it in. Students were able to retain information longer, have relieved anxiety, and be better problem solvers through collaborative test taking. Students and teachers both saw collaborative testing as fair. Many students reported being able to achieve a higher score on the assessment and were more confident because of collaborative assessment.

Reflection.

Through implementing this research project, the teacher-researchers were able to learn about and practice collaborative testing. Although this process was somewhat intimidating and came with a lot of risk, it was a positive experience for the teacher-researchers and the students. Rather than looking at tests as daunting assessments, both parties were able to see tests as fair and another learning experience they could participate in as a group. It also gave them the confidence to talk to colleagues about them work and encourage them to try such interventions in their classrooms because they knew they were research-based and effective.

I, Teacher-Researcher A, felt our approach to testing with pre and post data was very beneficial for me as an educator. This was a tremendous experience for my students as well. The information the pre-test gave me allowed me to focus my approach to best reach all the different learners within my classroom. The pre-test helped my students see what background knowledge they had on a specific skill before we started it in class. Students also could see how much they improved and grew through the process with their post-test results. The collaborative testing process has helped my students become aware of their specific roles as students in a middle school setting. The confidence my students have when taking collaborative test is

astounding to watch. Most students do not even need their job sheets to remind them of their roles within the group. By this point they look forward to hearing what their other classmates thought and enjoy discussing the topic with more detail. The approach we used helped my students understand and see that testing is a way to show growth on a topic and not just an end to a unit. This process has helped me grow as well as my students. I for one cannot wait to continue implementing this approach for years to come.

I, Teacher-Researcher B, have found this experience to be very beneficial and eye-opening. Previously I had focused on one culminating quiz or test for science and social studies to be an effective assessment for each unit, not always taking into consideration the different learning and test-taking styles of my students. While I believe I have been an effective instructor when it comes to teaching test-taking strategies, differentiation and construction of differentiated tests has never been my strong suit. I have found this process has changed the way I view the construction of my tests and quizzes. I need to focus on giving a pre-test at the beginning of each unit, and then putting students into collaborative groups to discuss their tests and quizzes post test and quiz. This process has been very beneficial to my students and relieved a lot of the anxiety that goes along with taking tests and quizzes in these different subject areas. I am looking forward to applying the collaborative testing process to my Civil War unit. Having the opportunity to work and collaborate with my other teacher researchers, was a rewarding experience. Knowing them, learning from them, as well as all their support during my illness, has made this experience a true blessing.

I, Teacher-Researcher C, was forced to know my students' strengths and weaknesses much more quickly. In order to differentiate, design effective tests, and group students to test collaboratively, I had to be aware of what each student needed to focus on to boost academic

achievement. It also helped me get into the habit of keeping records, aside from a grade book, of students' pre and post test data to ensure that each student showed growth by the end of a unit. The entire process enforced the importance of taking the time to meet the needs of students rather than simply the majority of students. By doing so, my students were each able to be successful while showing they are capable of demonstrating the same skills, but in a manner that is at their level.

Presentation and Analysis of Results

The purpose of this research was for the teacher researchers to provide their students with interventions to reduce student testing anxiety. The interventions include teaching and practicing test taking strategies, collaborative testing, and different pre and post-tests. Initially we collected data from 74 fifth - through seventh - grade students. Due to student mobility and changes of student schedules by the end of documentation there were 66 students surveyed. Evidence came from re-administering the baseline student survey the week of September 4, 2012 and then again the week of December 17, 2012 to determine if there was a reduction of testing anxiety.

Student Survey.

The purpose of the student survey was to gain knowledge of students study habits, and gain perspective about their feelings while taking tests. Teacher-Researchers A, B and C conducted the survey within their classrooms during post documentation with a return rate of 100% (n=66). Please refer to Appendix A where baseline student survey can be found.

Sixty-six students at all three sites were given surveys with six questions to complete in class. There were three questions that asked students to circle all answers that applied to them on preparing for tests, what kind of test questions they liked to answer, and how they felt while taking tests. One question asked students to use a Likert scale to describe test preparation habits

based on *never (1), sometimes (2), often (3), and always (4).* One question in the survey asked students to rate how comfortable they felt taking tests by subject based on *most comfortable (1), comfortable (2), somewhat comfortable (3), and not comfortable (4).*

The first survey question asked the student to select the feelings they faced while taking tests in school. Students were instructed to circle as many answers that applied. Of the 14 behaviors observed, all were identified (Figure 19). A majority of the 66 students (n=29 of 66, 43.9%) felt that they were nervous while taking tests in school. The next three emotions students experienced during testing were good (n=26 of 66, 39.3%), prepared (n=21 of 66, 31.8%), and bored (n=18 of 66, 27.2%). See the remaining results below in Figure 19.

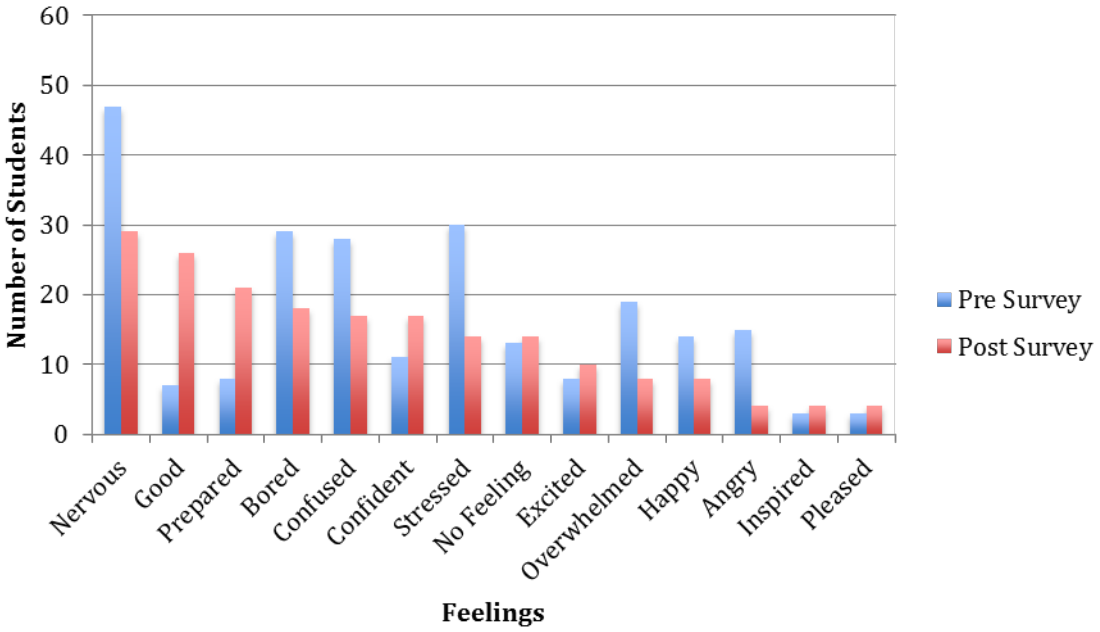

Figure 19: Students' Reactions to Tests Pre Survey (n=235) Post Survey (n=194)

When comparing the pre and post- student survey data, nervous was again the most noted feeling. However the post data shows that 27 of 66 students (40.9%) felt nervous compared to the 47 of 74 students (63.5%) on the pre-documentation survey, showing a decrease of 22.6% of students that felt nervous. According to the post-documentation survey an overwhelming

number of students (n=47 of 66) felt good or prepared when testing, which was an increase of 6% to 24.2%. These results indicated more students felt prepared prior to taking tests.

The second question gave students the opportunity to share what tools they used to study for upcoming tests in school. Students were instructed to circle all answers that applied and two options generated the most responses. Over half (n=34) of 66 students (51.5%) surveyed studied with practice tests. Study guides followed closely behind (n=31 of 66, 46.9%). Answering honestly, some students said they did nothing to study for upcoming tests (n=14 of 66, 21.2%). Refer to Figure 20 for more results.

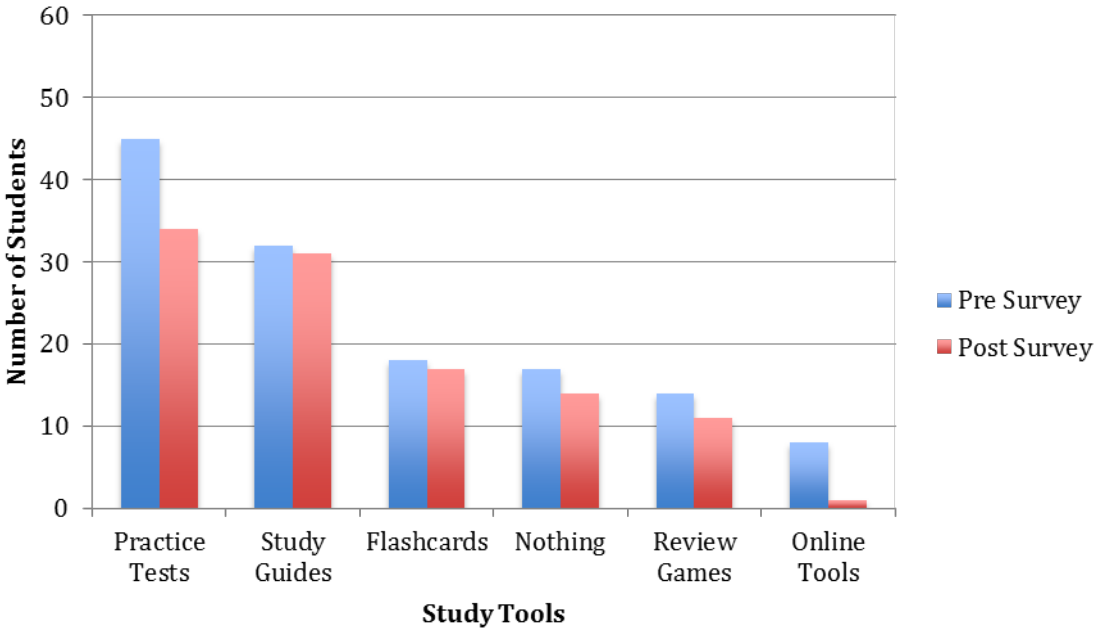

Figure 20: Study Tools Students Use Pre Survey (n=180) Post Survey (n=108)

Teacher-researchers wanted to note that when comparing both graph there was little difference between pre and post survey data. These results maybe be partially due to the amount of preparation done in the classroom.

The third question on the survey asked students to share how much time they spent preparing for tests. They were given four options and asked to select only the one that applied to

them. The majority of students spent one to two days studying for upcoming tests (n=36 of 66, 54.5%). Some students said they spent no time at all studying for test (n=7 of 66, 10.6%). See Figure 21 for additional data.

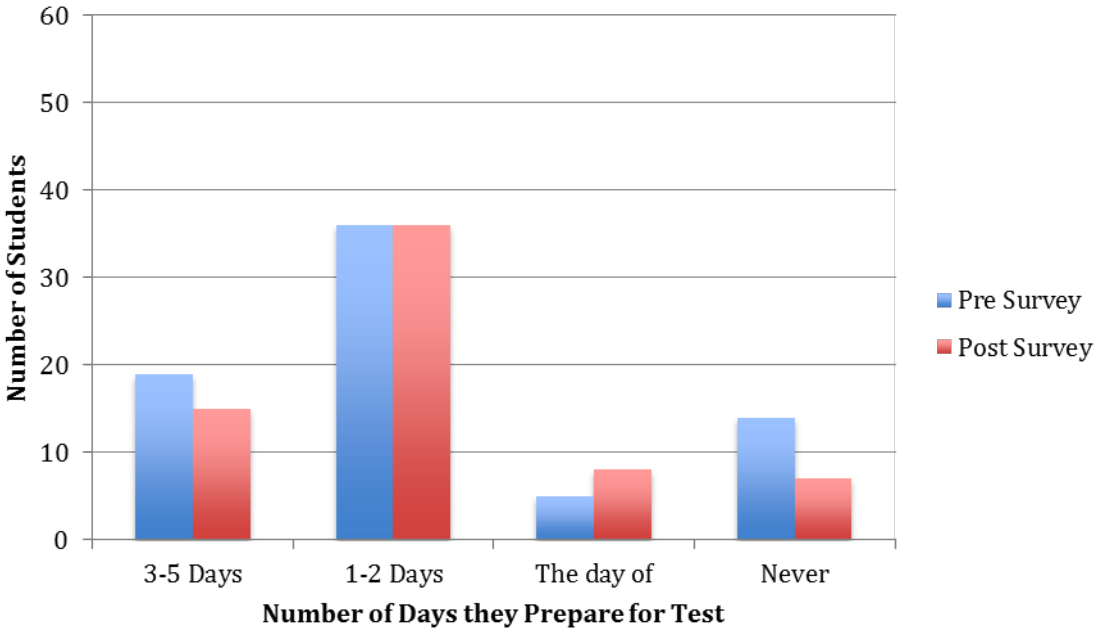

Figure 21: Number of Days Students Study for Tests Pre Survey (n=74) Post Survey (n=66)

Teacher-researchers wanted to note that when comparing the pre and post-survey data that *the day of* and *never* switched places. These results maybe due to the students realizing the amount they do to prepare in the classroom for upcoming assessments.

In the fourth question, students were asked how often someone at home helps them study for tests. A Likert scale of *never (1), sometimes (2), often (3), and always (4)* was used. Only 11 students (16.7%) said they never studied for tests. The largest number of students (n=25 of 66, 37.9%) said they were helped sometimes at home to prepare for a test. The summary of these findings can be found in Figure 22.

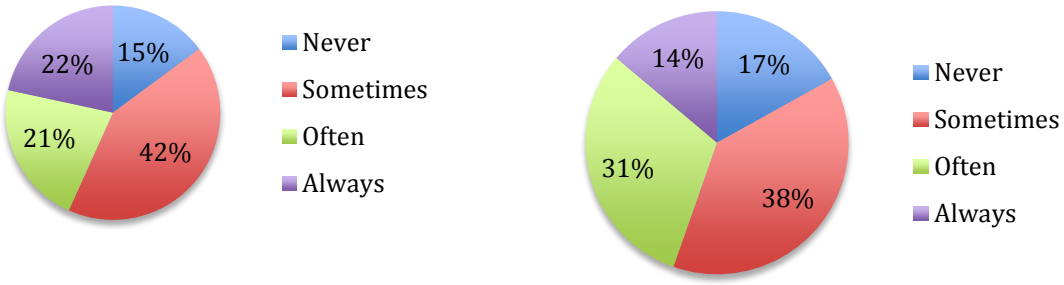

Figure 22: Students' Reactions to Tests Pre Survey (n=74) Post Survey (n=66)

According to the post survey 10% more students often received help from home. However 4% of students always received help preparing help from home. the many students still have support from home when preparing for a test.

The fifth question on the students' survey gave students the opportunity to share what types of questions they liked to see on tests. The students had one clear favorite, which was true or false (n=48 of 66, 72.7%). Multiple choice came in second (n=36 of 66, 54.5%), matching came in third place (n=31 of 66, 47.0%). Fill in the blank took fourth place (n=27 of 66, 40.9%). Please see Figure 23 for more information.

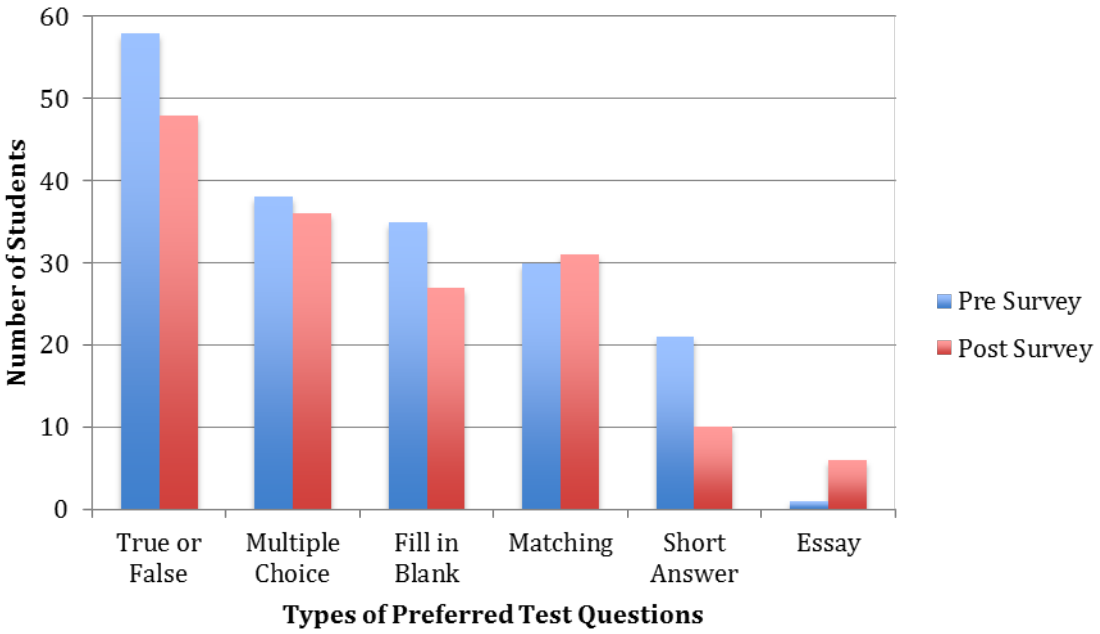

Figure 23: Student Preferred Test Questions Pre Survey (n=183) Post Survey (n=158)

When analyzing the data from the post survey students' preferences for types of questions to answer on a test remained the same, except for a slight increase on matching compared to a slight decrease for fill in the blank. The essay formatted question increased from 1.2% to 1.8%.

The final question on the survey asked students to describe their comfort level with taking tests in each subject area math, science, language arts, and social studies. A Likert scale of *most comfortable (1), comfortable (2), somewhat comfortable (3), and not comfortable (4)* was used. In the figure below, the data was collapsed into two categories of *comfortable (1 and 2) and not comfortable (3 and 4)*. The subject most students felt comfortable testing in was language arts (n=47 of 66, 71.2%), while more than half of the students felt least comfortable in science (n=44 of 66, 66.7%). Please refer to the Figure 24 to see the comparative results.

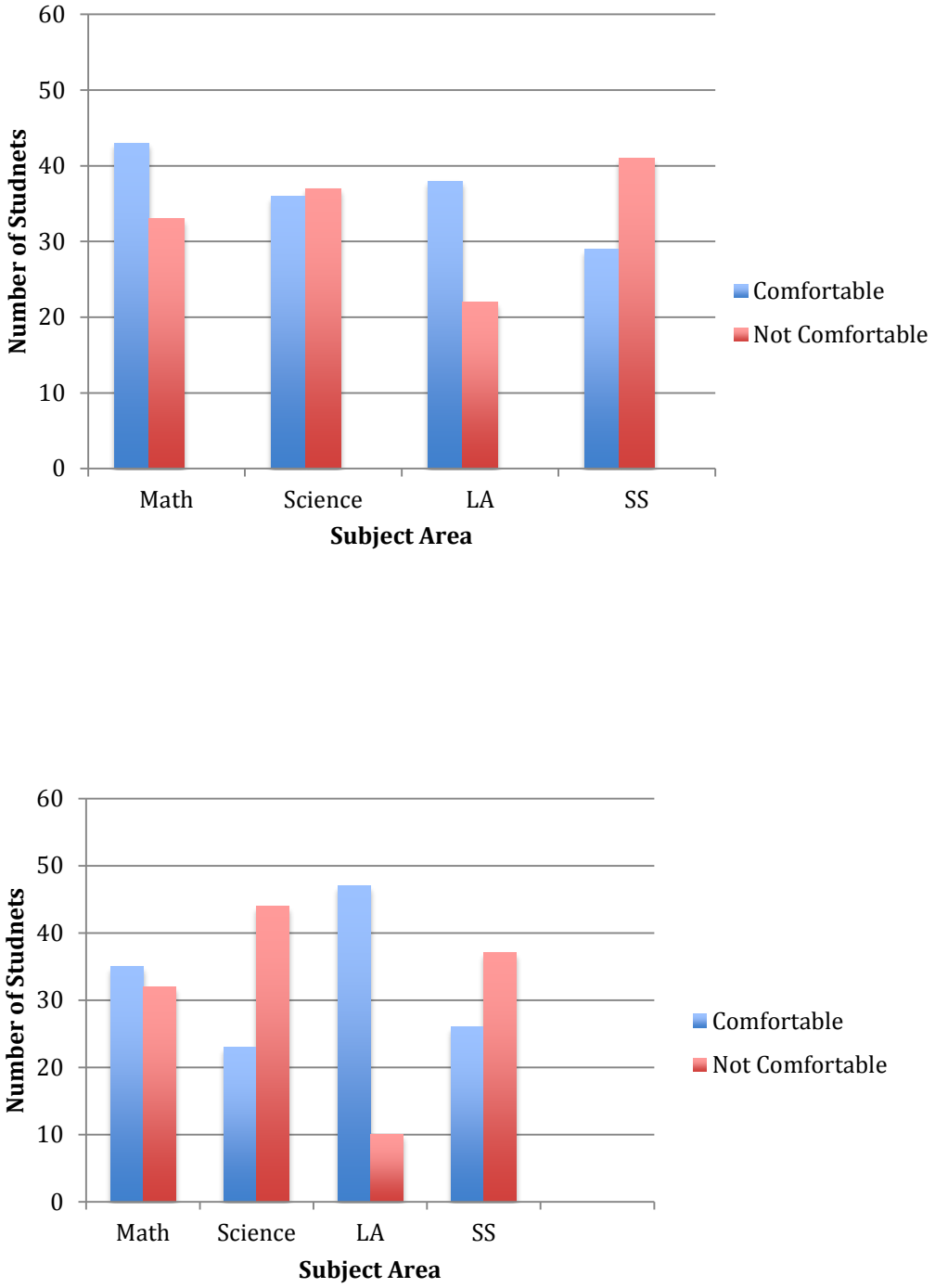

Figure 24: Comfort Level of Students Pre Survey (n=74) Post Survey (n=66)

When analyzing the science comfort level there was a large increase on number of students who were not comfortable when testing. On pre-survey data 50% of the students felt comfortable taking the test. On post-survey data, 34.8% felt comfortable taking tests. This was a decrease of 15.2%. When comparing data on language arts there was a large increase of 19.8% of students who felt comfortable taking LA tests.

Summary.

Through teaching test-taking strategies, differentiating tests, and testing collaboratively, students experienced a positive change in the way they view taking tests (Figure 19 and Figure 24). Despite interventions that took place in the classroom, students' habits at home remained the same (Figure 20 & Figure 21). Because of the manner in which students prepared for tests, their preference of types of questions did not change much (Figure 23). Regardless of how prepared a student feels for a test, he or she is most likely to prefer the question with the minimal amount of risk of answering incorrectly. The data confirmed that students overall became more comfortable taking tests in language arts, which was the subject in which the majority of the students were provided interventions in (Figure 24). Additionally, it needs to be noted that the large number of students in the language arts intervention are being pulled out of science or social studies, which would help indicate their lack of comfort in those content areas (Figure 22).

Throughout the time frame of the research, Teacher-Researchers A and B had students that were moved in and out of their classrooms due to families moving and changes in students' schedules. Even though these students were not included in the data, their presence in the classroom and collaborative groups may have affected test or survey results for the other students. Also, because Teacher-Researcher B was unable to give the post-documentation survey until after winter break, due to the above mentioned health issues, students' opinions may

be skewed for science and social studies. The students of Teacher-Researchers A and C did not have science or social studies classes due to their reading intervention periods. This could also affect student's opinions of taking tests in those content areas.

Conclusion and Recommendations

Conclusions.

When looking at the results of the data collected, the teacher-researchers concluded that students felt more prepared when they were able to collaborate on the post-tests in each unit. The teacher-researchers also recognized that pre-testing students before starting new instructional units enabled them to create differentiated instructional strategies to benefit their students' needs.

Recommendations.

Based on the results, the teacher-researchers plan on continuing these test-taking strategies and interventions. The process of collaborative testing combined with differentiated test designs truly seemed to ease students' anxiety and increase the levels of student achievement. Teaching test-taking strategies is also a good teaching practice. However, throughout each unit, it may be beneficial to have students help create and then take quizzes in-between the pre- and post test. This way, students can see their progress or lack there-of as well as can their teacher. By helping create a small test, students will have a better understanding of how to answer certain types of questions.

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APPENDICES

Appendix A

Student Survey

Circle the answer for each of your responses.

1. How do you feel about taking tests in school? *Circle all that apply.*

Confused	Angry	Overwhelmed	Confused	Nervous
Stressed	Bored	Excited	No feeling	Prepared
Pleased	Inspired	Happy	Confident	Good

2. What do you do to study for tests? *Circle all that apply.*

Study Guides	Review Games	Flashcards
Online Tools	Practice Tests	Nothing

3. When do you start studying for a test?

3-5 days before the test	1-2 days before the test	The day of the test	Never

4. Someone at home helps me study for a test.

1	2	3	4
Never	Sometimes	Often	Always

5. What types of questions would you rather answer on a test? *Circle all that apply*.

Multiple Choice	True/False	Fill in The Blank
Matching	Short Answer	Essay

6. Please rank how comfortable you feel taking a test in the following subject areas. 1 being the most comfortable and 4 being not comfortable. Be sure you have placed 1, 2, 3, or 4 in each blank.

1 = Most comfortable
2 = Comfortable
3 = Somewhat comfortable
4 = Not comfortable

* Math _____

* Science _____

* Language Arts _____

* Social Studies _____

Appendix B

Parent Survey

Please do not put your or your student's name on this survey to ensure that your answers are kept anonymous.

Read each question or statement and circle each selection that you feel best describes you and/or your child. Please answer honestly.

1. How do you think your child feels about taking tests in school? *Circle all that apply.*

Confused	Angry	Overwhelmed	Confused	Nervous
Stressed	Bored	Excited	No feeling	Prepared
Pleased	Inspired	Happy	Confident	Good

2. Who is responsible for preparing my child for a test? *Circle all that apply.*

My Child	Me	His/Her Teacher

3. Please rank how comfortable you feel helping your child study for tests in the following subject areas. 1 being the most comfortable and 4 being the least comfortable. Be sure you have placed 1, 2, 3, or 4 in each blank.

1 = Most comfortable
2 = Comfortable
3 = Somewhat comfortable
4 = Not comfortable

* Math _____

* Science _____

* Language Arts _____

* Social Studies _____

4. I help my child study for tests. *Circle one.*

1	2	3	4
Never	Sometimes	Often	Always

5. What do you do to help your child study for tests? *Circle all that apply.*

Study Guides	Review Games	Flashcards
Online Tools	Practice Tests	Nothing

6. I encourage my child to do extra work to make sure he/she understands the classroom material. *Circle one*.

1	2	3	4
Never	Sometimes	Often	Always

7. I feel my child is prepared for tests. *Circle one*.

1	2	3	4
Never	Sometimes	Often	Always

Appendix C

Teacher Survey

Thank you for taking the following survey. It will help me to research and implement alternative test designs and test taking strategies to ease test anxiety among students. Your participation is not required, but would be greatly appreciated. Returning this survey gives consent to use your information in my research project.

Please do not put your name on the survey. Responses will be kept confidential.

1. What types of tests do you use in your classroom? *Circle all that apply.*

Pre-made tests from textbook	Teacher created tests	Teacher modified pre-made tests

2. a. Do you provide students with strategies to prepare them for tests?

Yes No

b. If you circled yes, what strategies do you use to prepare students for tests? *Circle all that apply.*

Study Guides	Review Games	Flashcards
Online Tools	Practice Tests	Other (list below)

_____

3. a. Do you teach test taking strategies to your students?

Yes N

b. If you circled yes, what test taking strategies do you teach in your classroom? *Circle all that apply.*

Do what you know first	Double check answers	Use resources in the room
Circle key words	Eliminate wrong answers	Other (list below)

_____

4. Think of the last time you gave your students a test. What were the top 3 signs of test anxiety you observed in your students? *Circle the top 3 that apply.*

Walking around	Tapping	Distracting others	Talking/ shouting out	Disrespecting the teacher
Disrespecting other students	Refusal to work	Sweating	Lying head down	Sighing
Stomach ache	Headache	Crying	Biting nails	Anger
Laughing	Nervousness	Other (list below)		

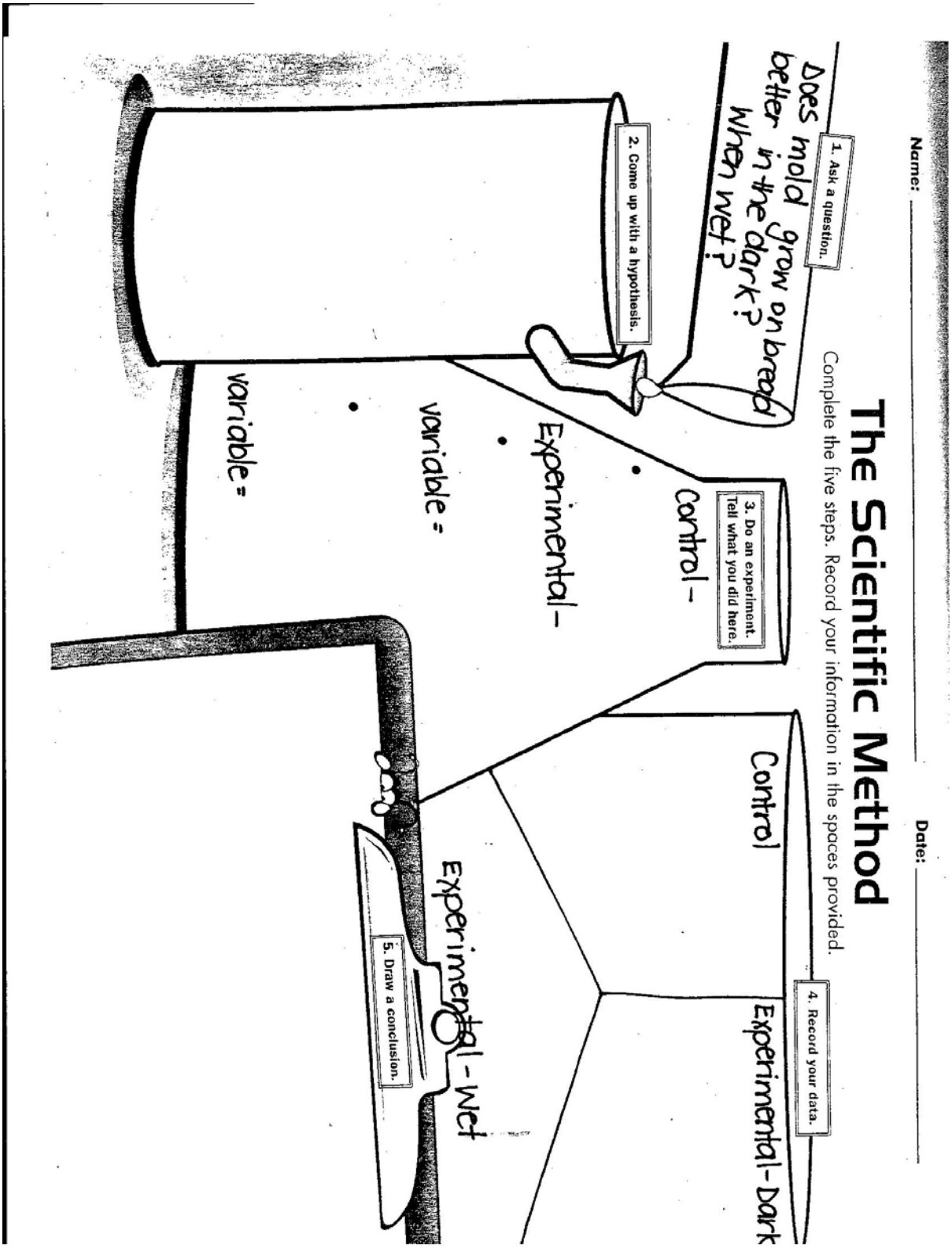
_____

5. What opportunities do you give students who do not perform well on a test to help ensure they master the content? *Circle all that apply.*

Test Corrections	Retest	Alternative Assessment	I do not provide any	Other (list below)

Appenix D

Hands-On Experiments



Name :_____

Observation Log

Mold Experiment

Record your observations with illustrations showing the changes, if any, of the three bread experiments over four different dates.

Date	Control	Dark and Dry	Light and Wet

Name: _____ Side A

Plant Life Scavenger Hunt

Fact Card #1. What type of tree is the tallest tree in the world?

_____

Fact Card #2. Why type of tree is the oldest in the word?

_____

Fact Card #3. What is the name of the substance that makes plants green?

_____

Fact Card #4. Which type of plant can grow over one meter in a single day?

_____

Fact Card #5. Name 5 things a Venus Fly Trap might eat.

_____

Fact Card #6. Do plants make food in their stems, flowers, roots or leaves?

_____

Fact Card #7. Name three things a plant needs roots for.

_____

Fact Card #8. About how many kernels are on an ear of corn?

_____

Fact Card #9. Bananas are not really fruits! What are they?

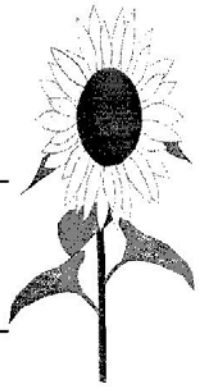
_____

Fact Card #10. Why are cactus stems usually very thick?

_____

Name: _____ Side B

Plant Life Scavenger Hunt



Fact Card #11. In which direction do sunflowers point?

_____

Fact Card #12. What do flowers produce?

_____

Fact Card #13. What do ferns have instead of seeds?

_____

Fact Card #14. How many species of plants exist on Earth?

_____

Fact Card #15. What type of gas do animals and people need to stay alive?

_____

Fact Card #16. What is the largest type of seed in the word?

_____

Fact Card #17. How are strawberry seeds unique?

_____

Fact Card #18. Why African tree species has roots that are 120 meters deep?

_____

Appendix E

Revolutionary War Pre-Test

Name: _____

1. Match these people with their accomplishments.

____ Ethan Allen

____ General Charles Cornwallis

____ Nathan Hale

____ Deborah Sampson

____ Phyllis Wheatley

a. was hung as a spy and said "I regret that I have one life to lose for my country"

b. led the Green Mountain Boys and captured Fort Ticonderoga

c. African American woman who wrote poems about the American Revolution and opposing slavery

d. Leader of the British troops who surrendered at Yorktown

e. she dressed up in men's clothing and joined the war effor

2. What was the "Swamp Fox" famous for? _____

3. This man went to England to ask King George to avoid war. _____

4. Why was signing the Declaration of Independence a dangerous act?

a. it was an agreement with King George

b. those who signed it belonged to no country

c. Britain viewed those who signed it as traitors

5. Washington and his army crossed what river to surprise the Hessians?

a. Potomac

b. Delaware

c. Ohio

6. This man started out as an American soldier but became known as a famous traitor.

a. Paul Revere

b. John Paul Jones

c. Benedict Arnold

7. This was the last significant battle of the American Revolution.

a. Yorktown

b. Valley Forge

c. Trenton

8. Who won the American Revolution?

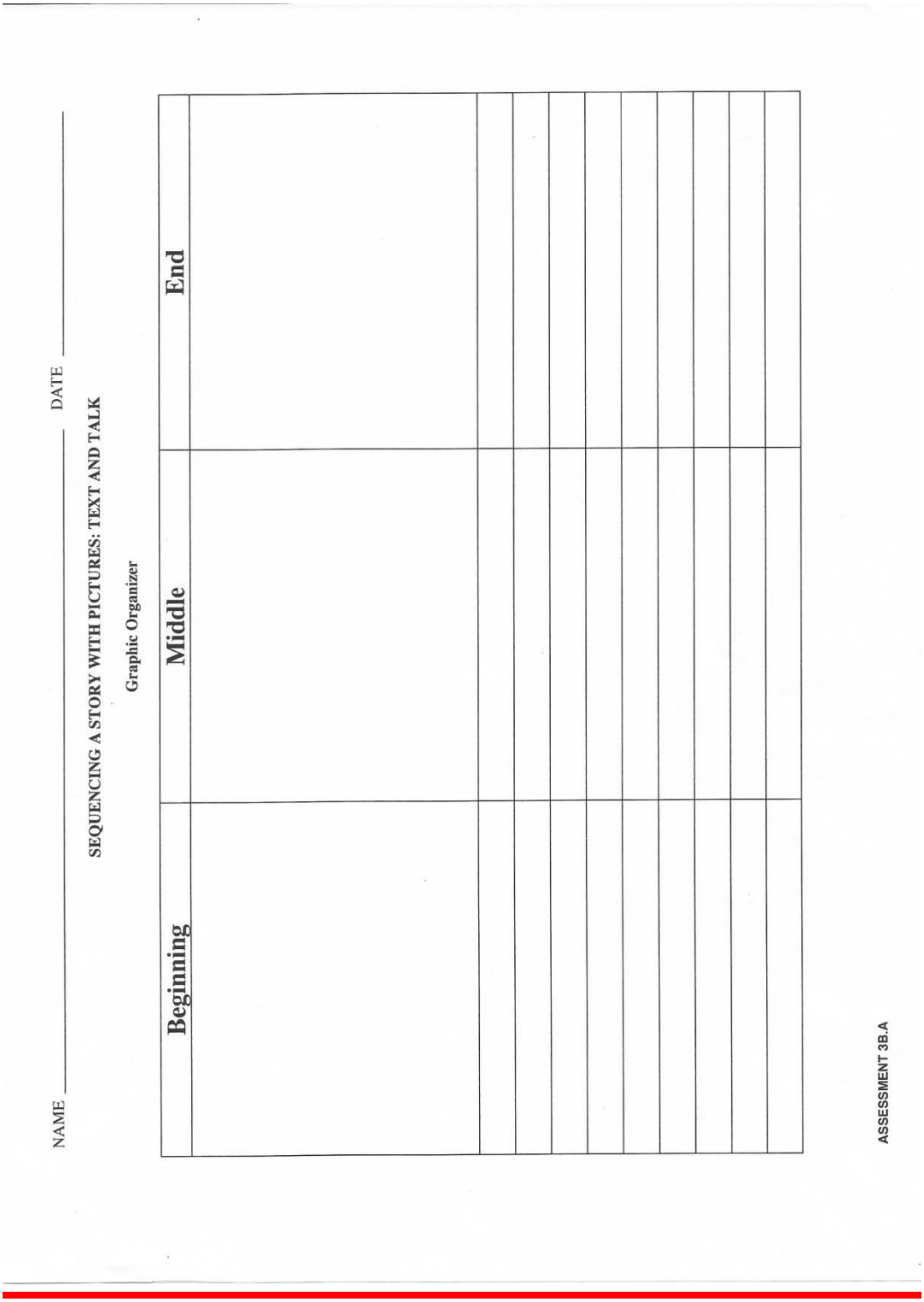
a. British

b. French

c. American colonists

Appenix F

Sequencing Activities



NAME _____ DATE _____

SEQUENCING A STORY WITH PICTURES: TEXT AND TALK

Graphic Organizer

Beginning	Middle	End

ASSESSMENT 3B.A

SEQUENCING A STORY WITH PICTURES: TEXT AND TALK

NAME _____ DATE _____

Exceeds standard (must receive 11 - 12 total points)
Meets standard (must receive 8 - 10 total points)
Approaches standard (must receive 5 - 7 total points)
Begins standard or absent (must receive 3 - 4 total points)

	Writing Process	Telling Through Writing	Conferences
4	• Consistently draws pictures that generate and organize ideas as pre-writing strategy. • Consistently writes text related to the pictures. • Consistently revises the text, if necessary, before sharing with peers.	• Sentences focus on beginning, middle and end. • Some additional elaboration/detail related to picture.	• Consistently responds accurately to questions about the character(s) and event(s) in the picture.
3	• Draws 2 pictures that generate and organize ideas as pre-writing strategy. • Usually writes text related to the pictures. • Usually revises the text, if necessary, before sharing with peers.	• Sentences focus on beginning, middle and end.	• Usually responds accurately to questions about the character(s) and event(s) in the picture.
2	• Draws one picture that generates and organizes ideas as pre-writing strategy. • Writes text that may/may not be related to the pictures. • Occasionally revises the text before sharing with peers.	• Some sentences focus on beginning, middle and end.	• Occasionally responds accurately to questions about the character(s) and event(s) in the picture.
1	• No picture uses age-appropriate drawing as a pre-writing strategy to generate and organize ideas.	• No sentences focus on beginning, middle and end.	• Seldom or never uses details in telling that relate only to the story in the pictures or letter approximations or the text.
Score			

Name _____ [redacted]

Comprehension

Lights, Camera, Action!

Hollywood! It's a magic name. When you think of Hollywood today, you probably think of bright lights and movie stars. But Hollywood wasn't always the movie capital of the world. Before the early 1900s, it was a small farming community near Los Angeles, California. Life was quiet and peaceful. Then in 1910, Hollywood became part of Los Angeles. Around that time, a new industry came to Hollywood: motion pictures. Hollywood would never be the same.

Hollywood wasn't the first place movies were made. From about 1890 to 1910, people had been making movies in New York, New Jersey, and Chicago. But Hollywood was a better place to make movies. Hollywood is warm and sunny all year round, so movies could be made in all seasons. It became impractical to make movies in the cold winter climate of Chicago and the cities of the Northeast. There was a lot of open space in Hollywood in 1910. That made it easy for filmmakers to make Westerns and other outdoor movies.

The Hollywood movies of long ago weren't like the movies you watch today. Before 1927, movies were made without sound. But they still were fun to watch. If you went to the movies in 1915, you would have paid a few cents to get in. Then you would enter an enormous theater. After that, the theater lights would dim. Finally, a piano player in the theater would begin to play. The music would set the mood for the movie.

Going to the movies long ago was a lot different than it is today, but it was just as much fun. Maybe that's why people throughout the years have said, "Hooray for Hollywood!"

Circle (10) sequence words/phrases.

Resource Links

[redacted]

SAM Keyword: Sequence

[redacted]

Name _____

[redacted] Graphic Organizer

Sequence of Events

Things that happen in a story or in real life are called **events**. A **sequence** is the order in which events take place. Try these ideas to help you keep track of the order of events in a text.

- Watch for time-order words, such as *first, next, after, then,* and *finally*.
- Look for clues that something might be happening out of order.

Write one event in each box in order.

Passage: "Lights, Camera, Action!"

Before the early 1900s,

↓

Then in 1910,

↓

From about 1890 to 1910,

↓

After 1927,

[redacted]

Resource Links
[redacted] RDI Book 1, p. 616
SAM Keyword: Sequence

Name _____ Date _____ Period _____

Lights, Camera, Action! *(Remember to restate the Question!!)*

Paragraph 1:

1. What was Hollywood like before it became part of Los Angeles?

_____

_____

_____

2. When did Hollywood become part of Los Angeles?

_____

_____

Paragraph 2:

3. Where were most of the movies made first: in New York, New Jersey, and Chicago, or in Hollywood? _____

_____

_____

4. How do you know movies weren't made in Hollywood at that time? _____

_____

Paragraph 3:

5. Describe in order the events that took place if you went to a movie in 1915. (Use sequence "signal" words in your description.) (4 steps)

_____

_____

_____

_____

_____

_____

_____

Appendix G

Group Roles

Group Leader

1. Read all directions to the group.
2. Lead the discussion.
3. Help with clean up.
4. You are the only one who can ask a question of the teacher.
5. Make sure that all students have participated in the discussion.

Materials Manager

1. Responsible for collecting and returning all materials & supplies to the appropriate place.
2. You are the only one who can get up for materials and supplies.
3. Make sure that everyone in the group has equal access to the materials and supplies.
4. Help with clean up.

Time Keeper

1. Keep track of time.
2. Keep group on task and remind them about time.
3. You are responsible for getting the group to finish on time.
4. Help with clean up.

Data Collector (Recorder)

1. Collect the data for the activity. (Keep a group test showing me all the answers your group selected for each question.)
2. Record data on the appropriate sheet.
3. Return data sheet to the teacher.
4. Help with clean up.

Encourager

1. Monitor other team members to make sure they do their own job.
2. Take responsibility for praising and affirming jobs that are well done.
3. Record 3 comments and actions that show positive interpersonal communication.
4. Report recorded comments and actions at the end of the session.
5. Help with clean up.

Appendix F

Name

Period

Date

Story Elements Pre-Test

I. Literary Terms: Match the following terms with the correct definition.

1. Literary work that tells about real people, places, and events _____
2. Person(s) or animals that take part in the story _____
3. Sequential events of the story _____
4. Struggle between opposing forces; problem in story _____
5. Central message of the story, what the author's message is _____
6. A literary piece of writing that is not fact based _____
7. Time and place of the action of the literary work _____
8. Perspective from which the story is told _____
9. Events that occur during the falling action, solving the conflict _____

A. Theme

B. Plot

C. Setting

D. Character

E. Conflict

F. Resolution

G. Point of View

H. Fiction

I. Non-fiction

J. Mood

10. The feeling a reader gets from the story_____

Multiple Choice: Circle the letter of the best answer.

1. This story is told from the point of view of:
    a. The King
    b. The Monkey
    c. The Queen
    d. The Narrato

2. This story is told in:
    a. 1st person narrative
    b. 3rd person omniscient (narrator)
    c. 2nd person
    d. All of the above

3. The main character of the story is:
    a. The king
    b. The monkey
    c. The bee
    d. The wives

4. "The Foolish Friend" takes place in:
    a. Chicago
    b. A grove in springtime
    c. A forest
    d. Round Lake, during the week

5. The conflict of the story is:
    a. The king falls asleep and is killed.
    b. The monkey needs to keep the bee away from the king.
    c. The king is tired.
    d. None of the above.

6. The bee stinging the king would be called the:
    a. The climax
    b. The theme
    c. The plot

d. The resolution

7. The theme of the story would be:
   a. You can only trust yourself.
   b. Choose your friends wisely.
   c. Monkeys do not make good friends.
   d. Both B and C

8. The monkey using his sword on the bee and accidentally also hitting the king would be the:
   a. Point of View
   b. Plot
   c. Resolution
   d. Theme

9. The plot of the story is:
   a. The king chose the monkey as his friend. They went to a grove in India and the king became tired. He asked the monkey to make sure no one disturbs him. A bee was flying around the sleeping king, the monkey tried to get it away. Then, the bee stung the king. The monkey killed the bee while also killing the king.
   b. The monkey and king were friends, although the monkey does not like the king. Once the king fell asleep, the monkey took that opportunity to murder him.
   c. A queen asked the monkey to watch over the king. The monkey was very foolish and allowed a bee to sting him.
   d. A and C only

10. "The Foolish Friend is an example of:
   a. Fable
   b. Poetry
   c. Drama
   d. Realistic Fiction

Name

Period

Date

Story Elements Pre-Test (Modified)

II. Literary Terms: Match the following terms with the correct definition.

11. Person(s) or animals that take part in the story _____ K. Plot

12. Sequential events of the story _____ L. Setting

13. Struggle between opposing forces; problem in story _____ M. Character

14. A literary piece of writing that is not fact based _____ N. Conflict

15. Time and place of the action of the literary work _____ O. Fiction

Multiple Choice: Circle the letter of the best answer.

5. This story is told from the point of view of:
    a. The King
    b. The Monkey
    c. The Narrator

6. This story is told in:
    a. 1st person narrative
    b. 3rd person omniscient (narrator)
    c. 2nd person

7. The main character of the story is:
    a. The king
    b. The monkey

c. The bee

8. "The Foolish Friend" takes place in:
    a. Chicago
    b. A grove in springtime
    c. A forest

5. The conflict of the story is:
    a. The king falls asleep and is killed.
    b. The monkey needs to keep the bee away from the king.
    c. The king is tired.

6. The bee stinging the king would be called the:
    a. The climax
    b. The theme
    c. The plot

7. The theme of the story would be:
    a. You can only trust yourself.
    b. Choose your friends wisely.
    c. Monkeys do not make good friends.

8. The monkey using his sword on the bee and accidentally also hitting the king would be the:
    a. Point of View
    b. Plot
    c. Resolution

9. The plot of the story is:
    a. The king chose the monkey as his friend. They went to a grove in India and the king became tired. He asked the monkey to make sure no one disturbs him. A bee was flying around the sleeping king, the monkey tried to get it away. Then, the bee stung the king. The monkey killed the bee while also killing the king.
    b. The monkey and king were friends, although the monkey does not like the king. Once the king fell asleep, the monkey took that opportunity to murder him.
    c. A queen asked the monkey to watch over the king. The monkey was very foolish and allowed a bee to sting him.

10. "The Foolish Friend is an example of:
    a. Fable
    b. Poetry
    c. Drama

Appendix I

Sequencing Post Tests

Comprehension

Read the following earth science text. Then answer questions 1–6.

The Great Galveston Storm

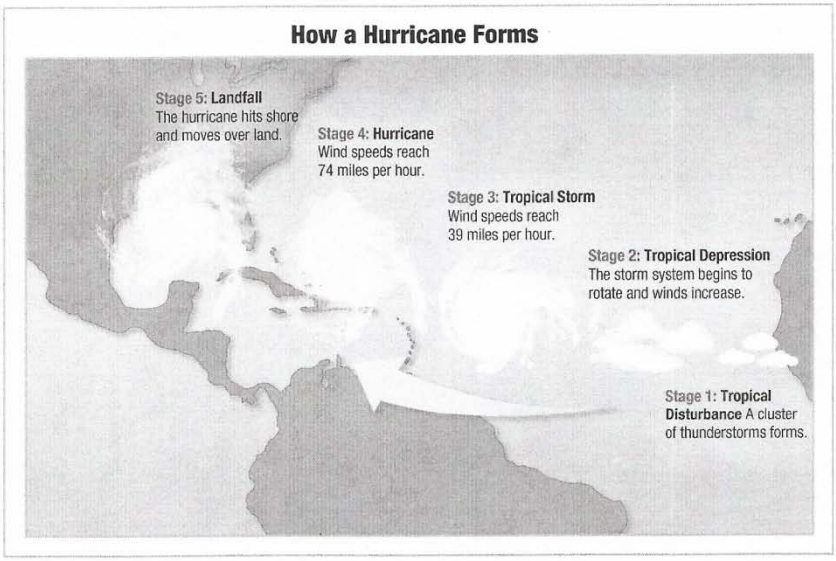
What is the worst natural disaster in U.S. history? Many people think it happened in 1900. That is when a big storm hit Galveston, Texas. At least 8,000 people died because of the storm.

In those days, it was hard to predict the weather accurately. The Galveston storm came in from the Gulf of Mexico. But it was not like other gulf storms.

On Saturday, September 8, the wind was very strong. Huge waves crashed onto the beach near the town of Galveston, which is on an island. Then a big ship broke free of its anchor. Wind and waves pushed the ship into some bridges. The bridges were crushed. Because of this, people could not escape.

Soon, the ocean began to rise. It covered much of the town. Buildings were destroyed and people were swept out to sea. The storm only lasted two days, but it changed the town of Galveston forever.

GO ON



1. What happened just after the ocean began to rise?

Ⓐ People were swept out to sea.

Ⓑ The storm lasted two days.

Ⓒ Water covered the town.

Ⓓ Buildings were destroyed.

2. What happened first?

Ⓐ A ship broke free.

Ⓑ Huge waves crashed on the beach.

Ⓒ A strong wind blew.

Ⓓ The ocean rose.

3. Which sentence from the text has a sequence signal word?

   Ⓐ Wind and waves pushed the ship into some bridges.
   Ⓑ It was not like other storms, however.
   Ⓒ Because of this, people could not escape.
   Ⓓ Then a big ship broke free of its anchor.

4. Look at the diagram. What happens just before a hurricane forms?

   Ⓐ The storm hits shore and moves over land.
   Ⓑ The tropical depression becomes a tropical storm.
   Ⓒ A tropical disturbance forms.
   Ⓓ The tropical disturbance begins to rotate.

5. What is the main idea of this text?

   Ⓐ The waves were strong enough to break a big ship free.
   Ⓑ People could not accurately predict weather in 1900.
   Ⓒ In 1900, a powerful storm destroyed Galveston, Texas.
   Ⓓ A ship crushed the bridges near Galveston.

6. Many people think the Great Galveston Storm was America's worst natural disaster because—

   Ⓐ at least 8,000 people died.
   Ⓑ it came in from the Gulf of Mexico.
   Ⓒ a ship broke free of its anchor.
   Ⓓ the town was flooded.

GO ON

3. Which sentence from the text has a sequence signal word?

   Ⓐ Wind and waves pushed the ship into some bridges.
   Ⓑ It was not like other storms, however.
   Ⓒ Because of this, people could not escape.
   Ⓓ Then a big ship broke free of its anchor.

4. Look at the diagram. What happens just before a hurricane forms?

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   Ⓐ at least 8,000 people died.
   Ⓑ it came in from the Gulf of Mexico.
   Ⓒ a ship broke free of its anchor.
   Ⓓ the town was flooded.

GO ON

Read the following earth science text. Then answer questions 7–10.

Flooding Changes Lives

It was May 2007 in China's Sichuan Province. The rains began on a Wednesday. The rains drenched the land for two days. Many towns here lie near the Yangtze River. Heavy rains mean big trouble. By Thursday, flash floods had killed 21 people. Almost 400 were injured. And 11 were missing. Mudslides closed part of a highway. This hurt rescue efforts.

Flooding in this area is not new. China has seen worse. In 1931, the Yangtze River flooded. More than three million people died. The river flooded again in 1998. It destroyed homes and factories. It killed farm animals. But now the rains seem to come earlier each year. They occur more often. This puts more people at risk.

In 2003, China's government began building a dam on the Yangtze River. The Three Gorges Dam is one of the largest dams in the world. It was finished in 2009. The dam will help control flooding on the river and keep people safe.

7. This passage is mainly about—

Ⓐ animals.

Ⓑ food.

Ⓒ people.

Ⓓ floods.

8. The Three Gorges Dam will—

   Ⓐ help control flooding.
   Ⓑ close the highways.
   Ⓒ cause more floods.
   Ⓓ hurt rescue efforts.

9. What happened first in Sichuan Province in May 2007?

   Ⓐ Mudslides closed part of a highway.
   Ⓑ Floods killed 21 people.
   Ⓒ Rains began on a Wednesday.
   Ⓓ Almost 400 people were injured.

10. Which of these events in China happened first?

   Ⓐ Flash floods in Sichuan Province killed 21 people.
   Ⓑ A flood in 1998 destroyed homes and factories.
   Ⓒ Mudslides caused by heavy rain closed part of the highway.
   Ⓓ The Yangtze River flooded and killed more than three million people.

GO ON

Open Response

Write your answer in your own words on the lines below or on the answer document. Use complete sentences.

26. Review the texts "The Great Galveston Storm" and "Flooding Changes Lives." How do floods affect people? Write one or two sentences to explain.

Open Response

Write your answer in your own words on the lines below or on the answer document. Use complete sentences.

27. Review the texts "The Great Galveston Storm" and "Flooding Changes Lives." What are the advantages and disadvantages of living near water? Write two or three sentences to explain.

GO ON

Comprehension

Read the following ancient civilizations text. Then answer questions 1–6.

Historic Disasters

Pompeii, Italy–79 A.D.

Pompeii was a Roman town near what is now Naples, Italy. In the year 79 A.D., Pompeii was a seaside resort. Wealthy Romans lived there in fabulous homes with many rooms, beautiful gardens, and heated baths.

Then disaster struck. Around lunchtime one August day, the ground began to shake. The nearby volcano, Mount Vesuvius, began smoking. A cloud of ash and rock rose above the mountain and fell on the seaside town and surrounding area. Buildings collapsed and people began to flee, but they didn't go far. The mountain suddenly seemed to calm down. Many people returned to their homes to collect their belongings.

That night, the volcanic eruption began again, but this time it was worse. Instead of blowing ash and rocks high into the air, the mountain broke apart. An avalanche of steaming mud, rock, and molten lava flowed into the town, killing many people who remained there. Later that night, another avalanche completely buried the town. The eruption of Mount Vesuvius was one of the most devastating volcanic disasters in history.

London, England–1666

On a Saturday night in 1666, a baker forgot to put out the fire in his oven. This was not just any baker. In fact, he was the baker to King Charles II of England. Sparks from the oven set some nearby firewood aflame. Before long, the shop and the baker's house were blazing. The family escaped, but there was no stopping the fire.

GO ON

At that time, many of London's buildings were built of wood with roofs made of straw. The wind carried sparks from the fire to nearby buildings. Flames consumed the buildings one by one. By sunrise on September 2, the fire reached a point where the firefighting equipment of the time could not stop it. The inferno raged for four days. The Great Fire of London destroyed most of the city, including more than 13,000 homes and 87 churches.

The fire eventually burned itself out after destroying more than three-quarters of London. Surprisingly, only six people are known to have lost their lives. In fact, the fire may have had some positive effects. It killed many of the rats that had spread plague throughout the city. Also, city officials and insurance companies realized that having trained and organized firefighters could make a significant difference. Most important, the government replaced the wooden buildings that had been destroyed with buildings made of brick and stone. Many of those newer buildings are still standing today.

Lisbon, Portugal–1755

Some people consider the Lisbon earthquake of 1755 to be the first modern natural disaster. Before this earthquake, many believed that natural disasters were caused by divine forces that wanted to punish people for evil acts. But scientists for the first time were able to explain the Lisbon earthquake in natural terms.

On November 1, at around 9:30 A.M., a series of three quakes occurred in a period of about ten minutes. The center of the earthquake was about 125 miles off the coast, but the shaking was intense. Reports of tremors reached as far north as Finland. Within minutes, much of the city of Lisbon was destroyed.

The earthquake overturned cooking fires, lamps, and candles. Many citizens fled to the sea to escape the fires that burned. Within 30 minutes of the earthquakes, the sea rose into a great tsunami. The tsunami swept the water from

GO ON

the harbor. Then, the water rushed back in, reaching a height of nearly 50 feet. Many buildings were destroyed, and thousands of people were swept into the sea.

Despite the awful destruction, Lisbon was rebuilt. Today it is one of the most beautiful cities in the world.

1. What is the main idea of the section on Pompeii?

   Ⓐ Many wealthy Romans lived in Pompeii in fabulous homes.
   Ⓑ The eruption of Mount Vesuvius destroyed Pompeii in 79 A.D.
   Ⓒ A cloud of ash and rock covered the seaside town.
   Ⓓ People returned to their homes to collect their belongings.

2. What is the first thing that happened after the London baker forgot to put out the fire in his oven?

   Ⓐ Sparks blew onto other buildings.
   Ⓑ The baker's family escaped the fire.
   Ⓒ The king hired a new baker.
   Ⓓ Sparks set fire to some nearby firewood.

3. Which of these happened in Lisbon after the cooking fires, lamps, and candles were overturned?

   Ⓐ A series of three earthquakes shook Lisbon.
   Ⓑ Shocks from the earthquake reached Finland.
   Ⓒ Divine forces punished the people of Lisbon for evil acts.
   Ⓓ People ran to the sea to escape the fires.

GO ON

4. Which event happened last during the Lisbon earthquake?

   Ⓐ A 50-foot wave called a tsunami hit the city.

   Ⓑ Fires burned houses and stores.

   Ⓒ Molten lava covered the city.

   Ⓓ Extraordinary tremors destroyed a large part of the city.

5. Which sentence from the text begins with a *sequence signal phrase*?

   Ⓐ In fact, the fire may have had some positive effects.

   Ⓑ The family escaped, but there was no stopping the fire.

   Ⓒ Before long, the shop and the baker's house were in flames.

   Ⓓ Despite the awful destruction, Lisbon was rebuilt.

6. According to the text, what is one positive effect of London's Great Fire?

   Ⓐ It destroyed more than 13,000 homes.

   Ⓑ Brick and stone buildings replaced wooden ones.

   Ⓒ Six people lost their lives.

   Ⓓ More than three-quarters of London was lost.

GO ON

Read the following earth science text. Then answer questions 7–10.

Floods, Mudslides Claim Lives in Brazil

First came the rains, pounding the city of Rio de Janeiro, Brazil. The downpour stalled rush hour traffic. Then the floodwaters rose. They swept away hundreds of people, drowning many. The rain caused the hillsides to topple in cascades of mud.

"We heard a huge noise and when we turned around, everything had come down," reported one survivor. This resident was lucky to survive.

The rains cleared two days later. By Wednesday, April 7, 2010, the count began. Floods and mudslides had claimed the lives of at least 229 people. Hundreds more suffered injuries. Thousands had been left homeless. No one yet knew the fate of people in Niterói. In this city across the bay, mud covered everything.

The local weather service made a startling announcement. The rain that fell in a few short days was twice the amount that usually falls during an entire April. Rio de Janeiro's mayor closed roads and schools. He also urged people to stay in their homes. State Governor Sergei Cabral set aside three days of official mourning. But as the skies cleared, Brazil's president criticized local officials. Why had so many poorly constructed homes remained in Rio de Janeiro's slums? Why were such flimsy huts built along the hillsides? All this contributed to the high death toll.

The press also blamed authorities for failing to plan for the disaster. "Where is the emergency plan?" questioned a headline in the newspaper *O Globo*. Brazilian officials knew that a disaster could happen because this season brought more rain than any time in 60 years. But they did not prepare for it.

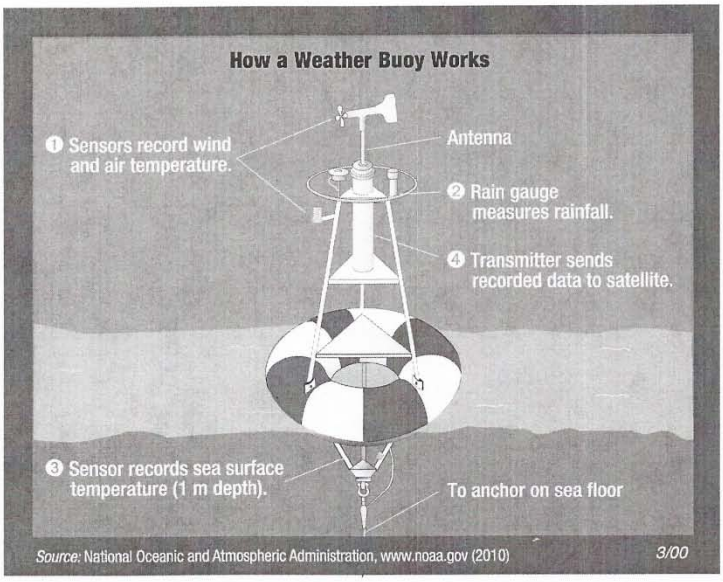
GO ON

After the floods, the president pledged $112 million in emergency funds. Meanwhile, Governor Cabral said Brazil would invest $562 million to construct new, sturdier housing. This news came as Rio de Janeiro prepared for two important events: Brazil's hosting the World Cup Soccer Tournament in 2014 and the Summer Olympics in 2016.

Meteorologists at Brazil's national weather service blame El Niño for the year's extreme rains. El Niño is a weather pattern in which warm surface waters stall in the Pacific Ocean. As a result, El Niño radically affects climate. It can bring torrential rains to South America. At the same time, it can cause severe droughts in other areas. Forecasters hope new technology will help them predict when El Niños will occur. For example, scientists have placed dozens of buoys in the Pacific Ocean to record water temperatures and other data. The data is transmitted to weather centers for scientists to study.

Sometimes El Niños last less than a year. From 1990 to 1995, El Niño settled in for five years. More frequent El Niños could mean more severe weather. Currently, scientists are studying possible causes of recent El Niños. Meanwhile, Brazil is busy rebuilding. Money to build better housing came from funds set aside to build World Cup and Olympic arenas. The recent flooding damaged many sports venues. Not even the famed Maracana stadium was spared. Brazil hopes time is on its side. It needs to build better housing *and* prepare to host world events—weather permitting.

GO ON



7. This text is mainly about—

Ⓐ how El Niño causes changes in weather patterns.

Ⓑ why days of heavy rain can cause mudslides.

Ⓒ how a major storm affected a region in Brazil.

Ⓓ why Rio de Janeiro will host the 2016 Olympics.

8. Even during the floods, one thing that could have saved lives is—

Ⓐ better roads.

Ⓑ more emergency funding.

Ⓒ better weather prediction.

Ⓓ stronger homes.

GO ON

9. Which of these events happened last?

Ⓐ Brazil's president criticized local officials.

Ⓑ A downpour stalled rush hour traffic.

Ⓒ Flooding swept hundreds of people away.

Ⓓ El Niño settled in the Pacific for five years.

10. Look at the diagram. What does the weather buoy do last?

Ⓐ measures air and wind temperature

Ⓑ records amounts of rainfall

Ⓒ transmits data to a satellite

Ⓓ measures sea surface temperature

GO ON

Open Response

Write your answer in your own words on the lines below or on the answer document. Use complete sentences.

26. Review the text "Historic Disasters." What was the main idea in both the section on Pompeii and the section on Lisbon? Write one or two sentences to explain.

GO ON

Open Response

Write your answer in your own words on the lines below or on the answer document. Use complete sentences.

27. Review the texts "Historic Disasters" and "Floods, Mudslides Claim Lives in Brazil." What do all of the disasters in these texts have in common? Write two or three sentences to explain your thoughts.

GO ON

Appendix J

Name: _____

REVOLUTIONARY WAR TEST

MATCH THE WOMAN WITH HER ACCOMPLISHMENT. WRITE THE CORRECT LETTER ON THE LINE.

____ Abigail Adams

____ Mary Ludwig Hayes

____ Deborah Sampson

____ Martha Washington

____ Phyllis Wheatley

a. Put on men's clothing and entered Continental Army

b. African American woman who wrote poems supporting the Revolution and opposing slavery

c. traveled with the Continental Army, visited wounded soldiers

d. nicknamed "Molly Pitcher" because she carried pitchers of water to the soldiers on the battlefield

e. spoke out for women's rights

CIRCLE THE CORRECT ANSWER

1. Which of the following was NOT a decision made by the Second Continental Congress?

a. declaring defeat

b. forming the Continental Army

c. declaring independence

d. electing a commander for the army

2. What was the Olive Branch Petition?

a. a pamphlet written by Thomas Paine

b. a letter sent to King George III to try to avoid war

c. a first draft of the Declaration of Independence

3. What was the purpose of the Declaration of Independence?

a. to propose a peaceful solution to the war

b. to convince King George III to avoid war

c. to explain why the colonies should declare their independence from Britain

4. Why was signing the Declaration of Independence a dangerous act?

a. there was a chance not many people would sign

b. it was an agreement with King George

c. Britain viewed those who signed it as traitors

5. How did the victory at Trenton affect Americans?

a. Americans lost hope

b. Americans were given new hope

c. Americans made it through the winter

6. How did the American victory at Saratoga affect the war?

a. the British hired more mercenaries

b. France joined the fight against Britain

c. the British took control of the Hudson River

7. Which of the following was NOT one of the contributions made by women during the American Revolution?

a. built forts

b. comforted wounded soldiers

c. delivered water on the battlefield

8. Which of the following describes how Friedrich Von Steuben helped the Continental Army?

a. He was a spy.

b. He knew how to build a fort.

c. He trained the soldiers.

9. Which of the following best describes John Paul Jones?

a. He worked hard but surrendered at the end.

b. He was determined to win.

c. He won, but it was not much of a challenge.

10. What resulted from the American victory at Yorktown?

a. The American Revolution ended.

b. The British strengthened their troops.

c. The Americans were prepared to win another battle.

EXPLAIN THE MEANING OF THE QUOTE:

“I have not yet begun to fight!”

_____

_____

_____

_____

_____

_____

FILL IN THE BLANKS. SPELLING COUNTS.

Ethan Allen

Benedict Arnold

General Charles Cornwallis

Fort Vincennes

Fort Ticonderoga

Francis Marion

Second Continental Congress

Treaty of Paris

Trenton

Valley Forge

Yorktown

11. _____ led the Green Mountain Boys and captured _____.

12. _____ was known as the “Swamp Fox” because he was famous for his surprise attacks.

13. One of the purposes of the _____ was to form the Continental Army.

14. Washington and his army crossed the Delaware and surprised the Hessians at _____.

15. Washington’s army wintered at _____ and more than 2,500 men died.

16. Although he was an American officer, _____ joined the British army for money and became known as a famous traitor.

17. George Rogers Clark marched through swamps to surprise the British and capture _____.

18. _____ was a British commander who set up camp in Yorktown, Virginia.

19. American cannons pounded the British in _____ and Cornwallis surrendered, signifying the last major battle of the American Revolution.

20. When the _____ was signed, the United States was recognized as an independent nation by Great Britain.

ANSWER THE FOLLOWING QUESTION IN A COMPLETE SENTENCE.

When Ethan Allen and the Green Mountain boys captured Fort Ticonderoga and the cannons, Henry Knox and his soldiers had to take them to George Washington near Boston. Why do you think this was this such a difficult task?

_____

_____

_____

_____

Name: _____

REVOLUTIONARY WAR TEST

MATCH THE WOMAN WITH HER ACCOMPLISHMENT. WRITE THE CORRECT LETTER ON THE LINE.

____ Abigail Adams

____ Mary Ludwig Hayes

____ Deborah Sampson

____ Martha Washington

____ Phyllis Wheatley

a. Put on men's clothing and entered Continental Army

b. African American woman who wrote poems supporting the Revolution and opposing slavery

c. traveled with the Continental Army, visited wounded soldiers

d. nicknamed "Molly Pitcher" because she carried pitchers of water to the soldiers on the battlefield

e. spoke out for women's rights

CIRCLE THE CORRECT ANSWER

1. Which of the following was NOT a decision made by the Second Continental Congress?

a. declaring defeat

b. forming the Continental Army

c. declaring independence

d. electing a commander for the army

2. What was the Olive Branch Petition?

a. a pamphlet written by Thomas Paine

b. a letter sent to King George III to try to avoid war

c. a first draft of the Declaration of Independence

d. a tax put on papers and legal document

3. What was the purpose of the Declaration of Independence?

a. to propose a peaceful solution to the war

b. to choose who would be the first president of the United States

c. to convince King George III to avoid war

d. to explain why the colonies should declare their independence from Britain

4. Why was signing the Declaration of Independence a dangerous act?

a. there was a chance not many people would sign

b. it was an agreement with King George

c. those who signed it belonged to no country

d. Britain viewed those who signed it as traitors

5. How did the victory at Trenton affect Americans?

a. Americans lost hope

b. Americans were given new hope

c. Americans were anxious to win the war

d. Americans made it through the winter

6. How did the American victory at Saratoga affect the war?

a. the British hired more mercenaries

b. the Americans took control of Lake Champlain

c. France joined the fight against Britain

d. the British took control of the Hudson River

7. Which of the following was NOT one of the contributions made by women during the American Revolution?

a. built forts

b. comforted wounded soldiers

c. delivered water on the battlefield

d. wrote poetry

8. Which of the following describes how Friedrich Von Steuben helped the Continental Army?

a. He was a spy.

b. He knew how to build a fort.

c. He trained the soldiers.

d. He taught all the soldiers to speak German.

9. Which of the following best describes John Paul Jones?

a. He worked hard but surrendered at the end.

b. He was determined to win.

c. He won, but it was not much of a challenge.

d. He surrendered right away.

10. What resulted from the American victory at Yorktown?

a. The American Revolution ended.

b. The British strengthened their troops.

c. The Americans were prepared to win another battle.

d. The British continued to move north.

EXPLAIN THE MEANING OF THE QUOTE:

“I only regret that I have but one life to lose for my country.”

_____

_____

_____

_____

_____

_____

FILL IN THE BLANKS. THERE MAY BE SOME WORDS THAT YOU DO NOT USE. SPELLING COUNTS.

Ethan Allen	Francis Marion
Battle of Saratoga	Olive Branch Petition
Benedict Arnold	Second Continental Congress
General Charles Cornwallis	Treaty of Paris
Fort Vincennes	Trenton
Fort Ticonderoga	Valley Forge
Nathan Hale	Yorktown

11. _____ led the Green Mountain Boys and captured _____.

12. _____ was known as the “Swamp Fox” because he was famous for his surprise attacks.

13. One of the purposes of the _____ was to form the Continental Army.

14. Washington and his army crossed the Delaware and surprised the Hessians at _____.

15. Washington's army wintered at _____ and more than 2,500 men died.

16. Although he was an American officer, _____ joined the British army for money and became known as a famous traitor.

17. George Rogers Clark marched through swamps to surprise the British and capture _____.

18. _____ was a British commander who set up camp in Yorktown, Virginia.

19. American cannons pounded the British in _____ and Cornwallis surrendered, signifying the last major battle of the American Revolution.

20. When the _____ was signed, the United States was recognized as an independent nation by Great Britain.

ANSWER THE FOLLOWING QUESTION IN A COMPLETE SENTENCE.

Francis Marion was famous for his surprise attacks on the British soldiers from the forests and swamps. Why do you think the British found this so frustrating?

_____

_____

Name: _____

REVOLUTIONARY WAR TEST

MATCH THE WOMAN WITH HER ACCOMPLISHMENT. WRITE THE CORRECT LETTER ON THE LINE.

____ Abigail Adams

____ Mary Ludwig Hayes

____ Deborah Sampson

____ Martha Washington

____ Phyllis Wheatley

a. Put on men's clothing and entered Continental Army

b. African American woman who wrote poems supporting the Revolution and opposing slavery

c. traveled with the Continental Army, visited wounded soldiers

d. nicknamed "Molly Pitcher" because she carried pitchers of water to the soldiers on the battlefield

e. spoke out for women's rights

CIRCLE THE CORRECT ANSWER

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c. He won, but it was not much of a challenge.

d. He surrendered right away.

10. What resulted from the American victory at Yorktown?

a. The American Revolution ended.

b. The British strengthened their troops.

c. The Americans were prepared to win another battle.

d. The British continued to move north.

EXPLAIN THE MEANING OF THE QUOTE:

“We must all hang together, or most assuredly we shall all hang separately.”

_____

_____

_____

_____

_____

_____

FILL IN THE BLANKS. THERE MAY BE SOME WORDS THAT YOU DO NOT USE. SPELLING COUNTS.

Ethan Allen	Francis Marion
Battle of Saratoga	Olive Branch Petition
Benedict Arnold	Second Continental Congress
General Charles Cornwallis	Thomas Paine
Declaration of Independence	Friedrich Von Steuben
Fort Vincennes	Treaty of Paris
Fort Ticonderoga	Trenton
Nathan Hale	Valley Forge
John Paul Jones	Yorktown

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19. American cannons pounded the British in _____ and Cornwallis surrendered, signifying the last major battle of the American Revolution.

20. When the _____ was signed, the United States was recognized as an independent nation by Great Britain.

ANSWER THE FOLLOWING QUESTION IN A COMPLETE SENTENCE.

George Rogers Clark and his force of men captured Fort Vincennes in February 1779. Why do you think this was such a remarkable accomplishment?

_____

_____

_____

_____

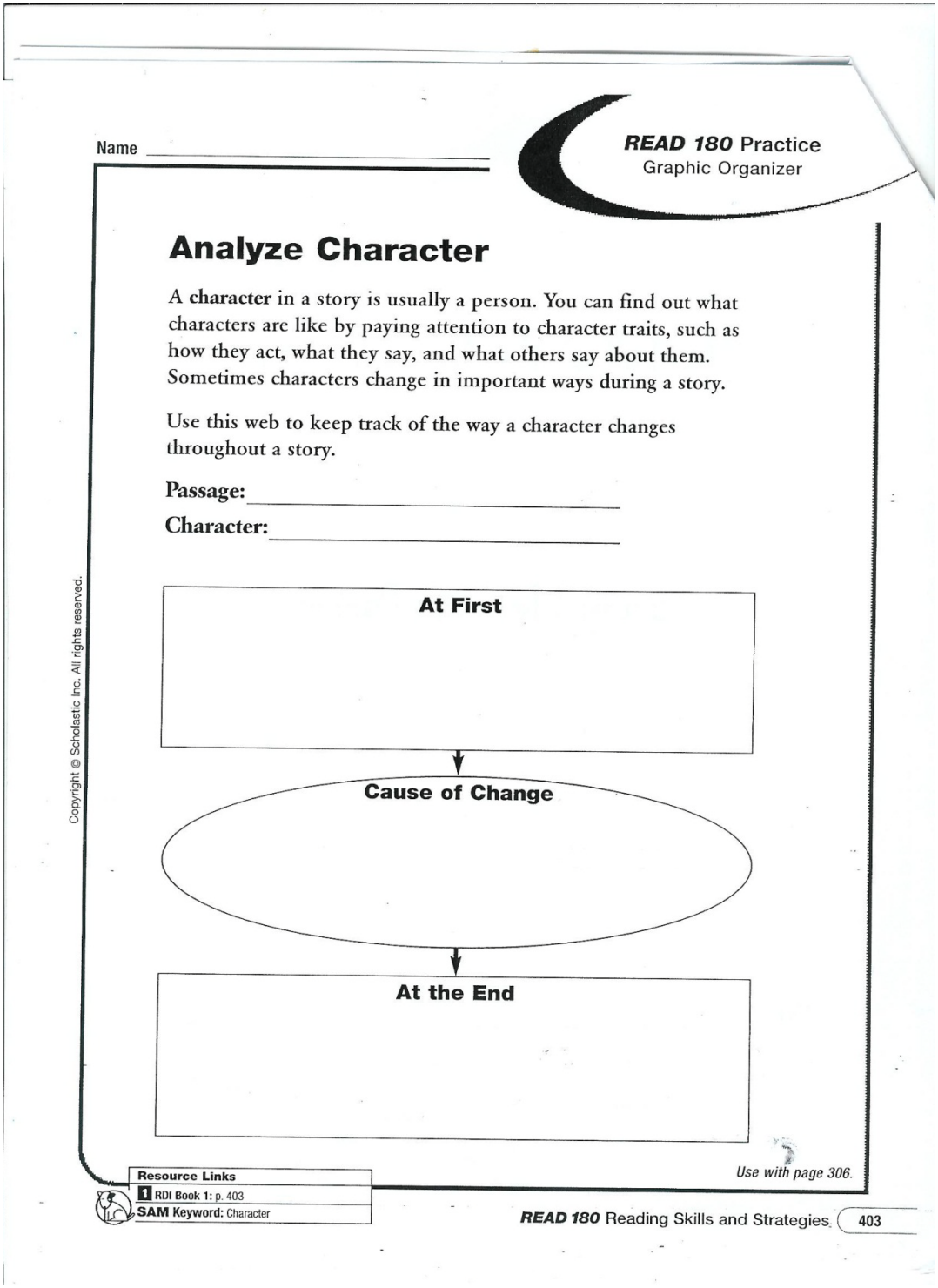
_____

_____

_____

Appendix K

Story Elements Graphic Organizers



Name _____

READ 180 Practice
Graphic Organizer

Analyze Character

A **character** in a story is usually a person. You can find out what characters are like by paying attention to character traits, such as how they act, what they say, and what others say about them. Sometimes characters change in important ways during a story.

Use this web to keep track of the way a character changes throughout a story.

Passage: _____

Character: _____

At First

Cause of Change

At the End

Resource Links
RDI Book 1: p. 403
SAM Keyword: Character

Use with page 306.

Name _____

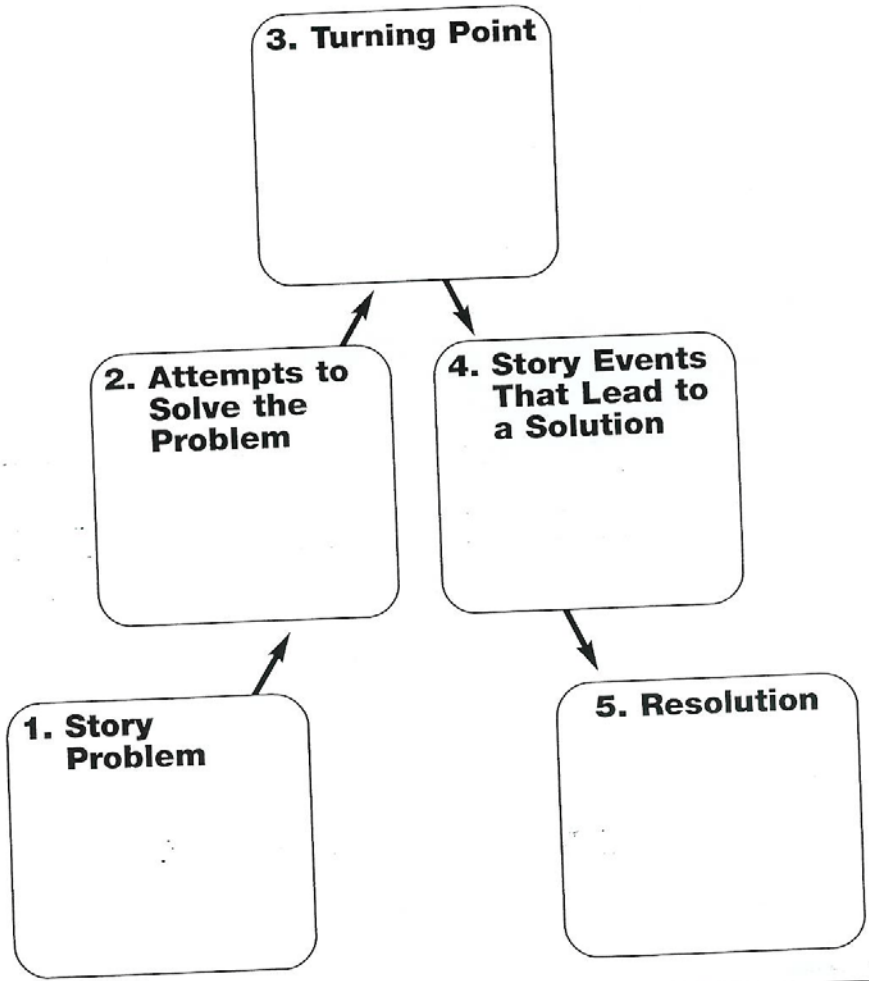
READ 180 Practice
Graphic Organizer

Analyze Plot

The **plot** includes all of the events that take place in a story. A story's plot often focuses on a problem that the main character faces and tries to solve. The *turning point* is usually the most exciting part of the plot.

Fill in this chart to help you analyze the plot.

Passage: _____



Use with page 311.

Resource Links
1 RDI Book 1: p. 408
SAM Keyword: Plot

Name _____

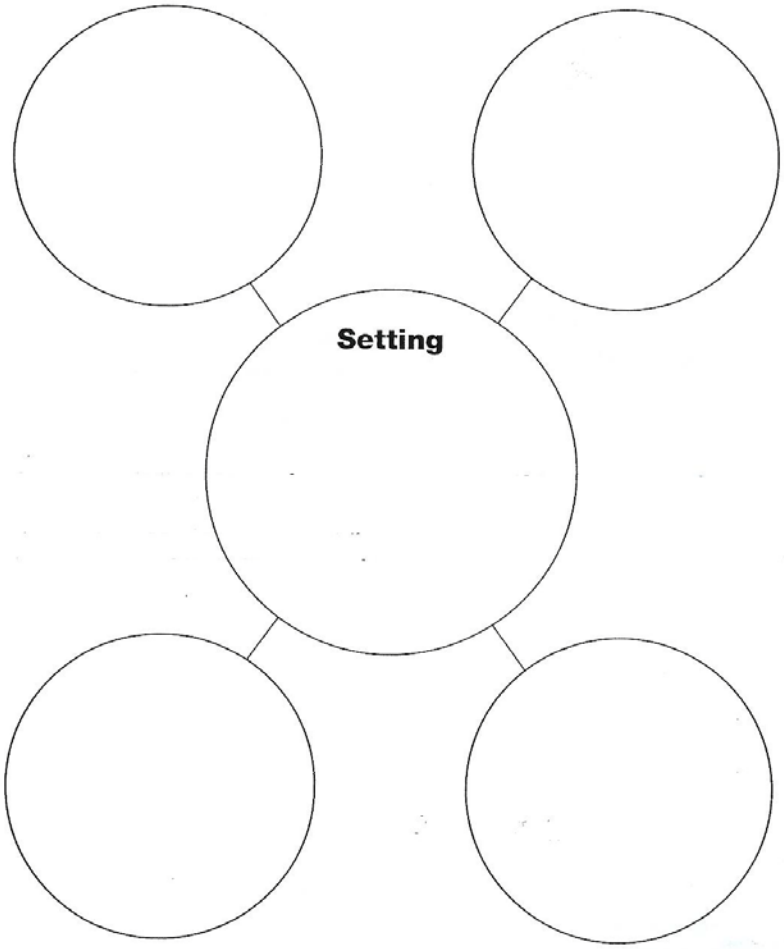
READ 180 Practice
Graphic Organizer

Analyze Setting

The **setting** is the time and place of a story. The setting can affect things a character does. It can also affect what happens in a story.

Use this web to list details about setting.

Passage: _____



Resource Links
1 RDI Book 1: p. 405
SAM Keyword: Setting

Use with page 308.

Appendix L

Story Elements Post Test

Name

Period

Date

The Fall of the House of Usher Quiz

Write in complete sentences to answer the following questions.

1. What is a plot?

2. Who is the main character in the story?

3. What was the relationship between Usher and the Narrator?

4. In the beginning, the narrator received a _____ from Usher. Describe how he felt when he received it.

5. What is the general setting of the story?

6. This story is a brief piece of fiction. What does that mean?

7. Why did Usher want the Narrator to come to his home?

8. How did the Narrator help Usher throughout the story?

a.

b.

c.

9. How did Usher change throughout the story?

9. What major events happened to cause Usher to change?

10. List the final events that happened during the resolution of the story.

a.

b.

c.

Name

Period

Date

The Fall of the House of Usher Quiz

Write in complete sentences to answer the following questions.

1. What is a plot?

A plot is

2. Who is the main character in the story? (Usher, the Narrator, or Madeline)

The main character is

3. What was the relationship between Usher and the Narrator? (friends, enemies, or father and son)

The relationship between Usher and the Narrator is

4. In the beginning, the narrator received a letter from Usher. Describe how he felt when he received it.

Usher felt

5. What is the general setting of the story?

The general setting of the story is

6. This story is a piece of fiction. What does that mean?

This means that

7. Why did Usher want the Narrator to come to his home?

Usher wanted the Narrator to come to his home because

8. How did the Narrator help Usher throughout the story?

a.

b.

c.

9. How did Usher change throughout the story?

At the beginning of the story, Usher...

At the end of the story, Usher...

9. What major events happened to cause Usher to change?

Usher changed because

10. List the final events that happened during the resolution of the story.

    a.

    b.

    c.