

WEST NEW YORK/ EISENHOWER
PROFESSIONAL DEVELOPMENT SCHOOL PROJECT 2008-2009

**Enhancing the Fifth Grade Mathematics Classroom Curriculum Through
Technology For Under and Over Achieving Students.**

Overview: *The project focused on inventing graphs from obtained data employing, organizing, and discriminating skills utilizing Excel and making a Power Point presentation. Students were further exposed to an effective teacher website that students have access to use as a supportive tool. The intention of the website will be to contain an umbrella of ideas that correlate and support the fifth grade core curriculum contents in mathematics.*

Objectives: *Students were given the opportunity to develop technology skills using Excel and Power point to create graphs for the purpose of generating a desire to learn; value the relevance of math in the real world and foster their solving math problems skills while mastering the fifth grade math core curriculum objectives pertaining to graphing.*

All students emerged as confident risk takers in applying their creativity in developing the essential elements and tools of graphing their data.

All students participating in the project realized the feeling of teacher and peer support and the benefit of technological tools to succeed and prosper to their potential.

Peter Cafasso

NJCCC STANDARDS

1. *{MA.5.4.1.5 A.1.b} Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 5 pertain to these sets of numbers as well). All decimals*
2. *{MA.5.4.1.5 A.6} Compare and order numbers.*
3. *{MA.5.4.2.5 D.4} Use measurements and estimates to describe and compare phenomena.*
4. *{MA.5.4.3.5 A.1.a} Recognize, describe, extend, and create patterns involving whole numbers. Descriptions using tables, verbal rules, simple equations, and graphs*
5. *{MA.5.4.3.5 C.2.a} Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events. Changes over time*
6. *{MA.5.4.3.5 C.2.b} Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.*
7. *{MA.5.4.4.5 A.1.a} Collect, generate, organize, and display data. Data generated from surveys*
8. *{MA.5.4.4.5 A.2.a} Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.
Bar graph, line graph, circle graph, table*
9. *{MA.5.4.4.5 A.3} Respond to questions about data and generate their own questions and hypotheses*
10. *{MA.5.4.5 C.3} Recognize that mathematics is used in a variety of contexts outside of mathematics*
11. *{MA.5.4.5 C.4} Apply mathematics in practical situations and in other disciplines.*
12. *{MA.5.4.5 E.1.b} Create and use representations to organize, record, and communicate mathematical ideas.
Pictorial representations (e.g., diagrams, charts, or tables)*
13. *{MA.5.4.5 F.1} Use technology to gather, analyze, and communicate mathematical information*
14. *{MA.5.4.5 F.2} Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information.*
15. *{TEC.K-4.8.1.A.5} Produce and interpret a simple graph or chart by entering and editing data on a prepared spreadsheet template.*
16. *{TEC.K-4.8.1.A.6} Create and present a multimedia presentation using appropriate software.*
17. *{TEC.K-4.8.1.B.6} Information Access and Research
Identify and use web browsers, search engines, and directories to obtain information to solve real world problems.*
18. *{TEC.K-4.8.1.B.9} Problem Solving
Solve problems individually and/or collaboratively using computer applications.*
19. *{TEC.K-4.8.1.B.3} Social Aspects Practice appropriate Internet etiquette.*
20. *{SOC.5-8.6.1.A.11} Summarize information in written, graphic, and oral formats.*
21. *{SOC.5-8.6.6.A.2} Translate maps into appropriate spatial graphics to display geographical information*
22. *{SOC.5-8.6.6.A.7} Explain the distribution of major human and physical features at country and global scales.*
23. *{SOC.5-8.6.6.D.4} Analyze the patterns of settlement in different urban regions of the world.*

LESSON PLANS

Lesson 1

Duration: 80 minutes

Objective: Students will be introduced to the website Classzone and practice the concepts listed below

ACTIVITIES / ASSIGNMENTS: Using the school computer lab, the students log on to www.classzone.com. At this website students do activities for the following topics:

Classzone Power Point Presentation

Chapter One Prerequisite skills

Estimation: Chapter 1, lessons 1&2

Standardized test Practice: Lesson 2 Examples 2,3.

Using Order of Operations: Lesson 4 Examples 1,2,3

Evaluating Expressions: Lesson 5 Examples 1,2,3

Guess, Check & Revise/ Mental Math: Lesson 6 Examples 1,2,3

Understanding & Planning: Lesson 7 Examples 1,2,3

Animation Games: Chapter 1

Selecting an Operation

Equations & Mental Math

Resources: Computer lab, Internet

Assessment: Teacher observation

Accommodations: Individual support, preferential seating, modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 2

Duration: 80 minutes

Objective: Students Will Be Able To (SWBAT) Utilize website Classzone.com and perform the following:
Evaluate expressions, Decimals Addition & Subtraction, Multiplication of Decimals, Equations and Mental math, Describing Patterns

ACTIVITIES / ASSIGNMENTS: Go to Website www.classzone.com
Lesson 1.5 Worksheet Evaluate expressions 1-10
Lesson 3.1 Worksheet Addition & subtraction of Decimals 1-10
Lesson 4.3 Worksheet Multiplication of Decimals 1-10
Chapter 1 Equations & Mental Math Animated Math Game
Chapter 1 Describing Patterns Animated Math Game
Chapter 1 Mountain Climbing Substitution Race Animation Game

Resources: Room 209, Classzone.com, calculators

Assessment: Observe student work, assess fun factor

Accommodations: Individual support, preferential seating, modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 3

Duration: 80 minutes

Objective: SWBAT Students collect & organize data by using surveys and organize data in frequency tables and line plots

ACTIVITIES / ASSIGNMENTS: Chapter 5 in Harcourt Mathematics Textbook, Lesson 5.1
Readings: Textbook page 96-97. Discuss Vocabulary words survey, sample, population, random sample, cumulative frequency, outlier
Questioning strategy: Use margin questions T E pg. 96-97
Do check Exercises 1-3
Practice Exercises: Page 98 Items 4-12
Mixed Review/Test Prep exercises Items 21-30

SKILLS FOR SUCCESS : Word Problems Harcourt Text Page 98, #19 & 20.
Linkup to Reading: Text Page 99 Items 1-6
Transparency 5.1: Problem of the Day, Number of the Day

Resources: Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 4

Duration: 80 minutes

Objective: SWBAT compute the mean of a set of data

ACTIVITIES / ASSIGNMENTS: Text Chapter 5, Lesson 2
Read/ Discuss text page 100.
Discuss Guided Instruction Questions T E Page 100
Do check Exercises 1-4 with students
Assign: Practice Problems page 101 Items 5-21.
Mixed Review / Test Prep Items 26-30

SKILLS FOR SUCCESS : Text Page 101. Solve Multistep problems 22, 23, 25
Transparency 5.2 Problem of the Day, Number of the Day, Daily Quiz

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution

processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 5

Duration: 80 minutes

Objective: SWBAT find the median and mode of a set of data

ACTIVITIES /ASSIGNMENTS: Share the lesson objective with students
Explain how they can use median and mode to describe the results of a survey

Lesson 5. 3 Read Textbook Page 102

Discuss Guided Instruction Questions T E Page 102

Do check Exercises 1-3 with students.

Independent Practice & Problem solving Page 103 Items 4-16

Mixed Review / Test Prep Items 17-21

SKILLS FOR SUCCESS : Review Homework Problem Solving Workbook dittos
5.1 & 5.2

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 6

Duration: 80 minutes

Objective: SWBAT use a stem and leaf plot to solve problems

ACTIVITIES / ASSIGNMENTS: Depict to students how graphs are used to help analyze data

Lesson 5.4 Readings: Text page 104. Reformulate using Tell/Show/Solve/Answer strategy with graphs

Discuss: Guided Instruction Questions, See TE Pg 104

Do Problem Solving Practice Exercises 1-4 with students

Assign: Independent Practice multi-step or strategy problems 5-10

Review homework

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 7

Duration: 80 minutes

Objective: SWBAT read, interpret, and analyze the data in graphs

ACTIVITIES / ASSIGNMENTS: Explain to students how this lesson will enable them to analyze graphs they will find in magazines and newspapers and on upcoming tests

Lesson 5.5 Read and Discuss the descriptions of the pictograph and bar graph, line graph and circle graph and how each type graph is used for a specific purpose

Use Guided Practice Questions TE pg 106-107

Do Check Exercises 1-5 with students

Assign: Independent Practice Page 108-109 Items 6-18

Mixed Review & Test Prep Items 19-28

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 8

Duration: 80 minutes

Objective: SWBAT utilize Excel to create their own graphs from a set of data

ACTIVITIES / ASSIGNMENTS: Making a graph in Excel
Students will be shown 10 steps how to make their own graphs. Students were previously placed in groups with specific topics to gather data from surveys for power point presentations. Students without data for graphs will be given teacher assigned data

Room 209 (40 min.) Loretta Amara, IKE tutorial

Skills for Success : Review Homework
Challenge Workbook 5.3 Mean, Median, Mode
Problem Solving Workbook :
5.3 (1-8) Mean, Median, Mode
5.4 (1-5) Using Graphing Aids
5.5 (1-9) Analyzing Graphs

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on

manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 9

Duration: 80 minutes

Objective: SWBAT choose appropriate scales and intervals for graphing data

ACTIVITIES / ASSIGNMENTS:

Chapter 6 Lesson 1 Discuss how learning this skill can help students make graphs to clearly represent data about scores, grades, or science experiments.

Readings: Text Page 116-117

Do Check Exercises 1-7 with students.

Assign Practice & Problem Solving Exercises Page 118 Items 8-16

SKILLS FOR SUCCESS : Problem Solving Use Data text page 118-119, Items 17-23

Use Transparency 6.1 for Problem of the Day and Number of the Day, & Daily Quiz

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 10

Duration: 80 minutes

Objective: SWBAT use ordered pairs of numbers to graph or identify points on a grid

ACTIVITIES / ASSIGNMENTS: Explain to students how learning this skill will help them locate places on maps by using the map index

Lesson 6.2 Algebra: Graph Ordered Pairs

Readings: Harcourt Text page 120

Utilize overhead projector for illustration

Use Guided Questions T.E. Pg. 121, 122

Do Check Exercises 1-5 with students

Assign: Practice & Problem Solving Exercises page 121, Items 6-27

SKILLS FOR SUCCESS :Text: Pg. 121 Use map grid to answer questions 28-32
Transparency 6.2 Problem of the Day, Number of the Day, Quiz of the Day

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 11

Duration: 80 minutes

Objective: To make single and double line graphs to show how data changes over time

ACTIVITIES / ASSIGNMENTS: Lesson 6.3 Making Line Graphs

Read: Harcourt Text Pages 122-123

Discuss Guided Instruction Questions TE

Do Check Exercises 1-4 with students

Assign: Practice & Problem Solving Exercises Text Page 124-125 Items 1-19

SKILLS FOR SUCCESS : Text Page 125

Mixed Review & Test Prep Items 20-28

Problem Solving Linkup to Reading (1-3)

Transparency 6.3 Problem of the Day, Number of the Day, Daily Quiz

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 12

Duration: 80 minutes

Objective: To solve problems using the strategy Draw a Diagram

ACTIVITIES & ASSIGNMENTS: Lesson 6.4 Problem Solving.

Harcourt Textbook readings page 126

Discuss students attention to the problem and how data can overlap

Using Guided Instruction Questions T.E Pg. 126

Do Problem Solving Practice Exercises Page 127 Items 1-4 with students

Assign: Mixed Strategy Practice Page 127 Items 5-8

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 13

Duration: 80 minutes

Objective: SWBAT display & interpret data in histograms

ACTIVITIES & ASSIGNMENTS: Harcourt text, Chapter 6, Lesson 5
Share the lesson objective with the students
Read & discuss Activity on Page 128 Using Guided Instruction questions in T.E.
Assign: Textbook Page 129 Problem Solving Exercises 1-5

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 14

Duration: 80 minutes

Objective: SWBAT choose the appropriate graph for a set of data

ACTIVITIES & ASSIGNMENTS: Harcourt textbook. Chapter 6, Lesson 6

Share the lesson objective with students. Why Learn This?

Read & discuss the examples on text page 130-131

Do Check Exercises 1-5 with students

Assign: Problem Solving Exercises Page 132 (6-13)

SKILLS FOR SUCCESS: Use the data table on Page 132 to solve problems 14-21

Resources: : Harcourt Textbook & Practice Workbook, Problem Solving Reading Strategies Workbook, Calculators, Transparencies, Overhead Projector, classroom computers, websites

Assessment: : Problem of the Day, Observe student work , use of questioning strategies, Quizzes, Chapter Tests, Identify students who are having difficulty and choose appropriate accommodations to provide assistance

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 15

Duration: 80 minutes

Objective: Students will be able to create and format a graph using Microsoft Excel

Activities & Assignments: Students use Microsoft Excel to create the graph of their choosing for the data they collected. Once they have made the graph, the students will format the graph and add a title

Resources: Computer lab, room 209

Assessment: teacher made graph rubric

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Lesson 16

Duration: 3- 80 minute periods

Objective: Students will be able to create power point presentation of their graph data including backgrounds, animation, transition, sound, timing, and their data question, graph and interpretation

Activities and Assignments: After a Microsoft PowerPoint demonstration give the students the PowerPoint requirement sheet and the PowerPoint rubric. Discuss the requirements and the assessment with the students. Finally, the students work to complete a 5 slide presentation

Resources: Computer lab, room 209

Assessment: teacher made graph rubric

Accommodations: Individual support, preferential seating ,modify assignments and tests, use real life problems that students can identify with, use hands on manipulative, use websites and software, model and verbalize solution processes used to solve problems, pairing students using G&T students in a tutorial role

Self-Evaluation: *This year's Eisenhower Project gave me the opportunity to expand my comfort zone and generate a new dimension of teaching resources in bringing the fifth grade mathematics curriculum to my students. My teacher website provides a variety of math websites for the students to explore and have fun practicing their math skills. Something that I have wanted to do for years was to put a lesson on a big screen to enhance the teaching and learning process. The possibilities of harnessing the potential of the "Smart Board", I feel I have only begun to explore. I commend the students whom I observe love working with computers. They engaged themselves working as a group and learning from each other. They learned to utilize Excel spreadsheets and create their Power Point presentations. Along with my students I have become more established in understanding technology as we move forward in the "Information Age".*

Appendix and Bibliography

Harcourt Fifth Grade Math Series:

Textbook

Practice Workbook

Problem Solving and Reading Strategies Workbook

Assessment Guide

Lesson Transparencies

www.classzone.com

www.aaamath.com

www.funbrain.com

www.coolmath4kids.com

www.mathplayground.com

www.mathfactcafe.com

www.gameaquarium.com

www.decimalsquares.com

www.mathwire.com

www.mathslice.com

www.Shodor.com

www.InteractiveMath.com

www.PBSkidsGames.com

www.QuiaMathJourney.com

www.BBBschools.com

www.FifthGradeMathSkills.com

www.MoreFifthGradeMathSkills.com

www.IXLMathGames.com

PowerPoint Requirements

1. You must have at least 5 slides.
2. There must be a title slide, an ending slide.
3. Your PowerPoint is about your graph information. The 3 or more slides between the title slide and the ending slide should be: the question, the graph itself, and your interpretation of the data.
4. All slides should have a background.
5. All slides should have slide transition.
6. All slides should have some custom animation.
7. At least 3 slides must have graphics or pictures.
8. There should be some sound associated with at least 3 slides.
9. Timing should be accurate. Each slide should stay on the screen long enough to be read, but not so long that the presentation is boring. Check your presentation for spelling and punctuation
10. Your presentation should run automatically. You should not have to click.

Graphing: Data Analysis Rubric

Teacher Name: Mr. Cafasso

Student Name: _____

| CATEGORY | 4 | 3 | 2 | 1 |
|-----------------------------|---|--|--|---|
| Originality | Presentation shows considerable originality and inventiveness. The content and ideas are presented in a unique and interesting way. | Presentation shows some originality and inventiveness. The content and ideas are presented in an interesting way. | Presentation shows an attempt at originality and inventiveness on 1-2 cards. | Presentation is a rehash of other people's ideas and/or graphics and shows very little attempt at original thought. |
| Content - Accuracy | All content throughout the presentation is accurate. There are no factual errors. | Most of the content is accurate but there is one piece of information that might be inaccurate. | The content is generally accurate, but one piece of information is clearly flawed or inaccurate. | Content is typically confusing or contains more than one factual error. |
| Background | Background does not detract from text or other graphics. Choice of background is consistent from card to card and is appropriate for the topic. | Background does not detract from text or other graphics. Choice of background is consistent from card to card. | Background does not detract from text or other graphics. | Background makes it difficult to see text or competes with other graphics on the page. |
| Spelling and Grammar | Presentation has no misspellings or grammatical errors. | Presentation has 1-2 misspellings, but no grammatical errors. | Presentation has 1-2 grammatical errors but no misspellings. | Presentation has more than 2 grammatical and/or spelling errors. |
| Cooperation | Group delegates tasks and shares responsibility effectively all of the time. | Group delegates tasks and shares responsibility effectively most of the time. | Group delegates tasks and shares responsibility effectively some of the time. | Group often is not effective in delegating tasks and/or sharing responsibility. |
| Effectiveness | Project includes all material needed to gain a comfortable understanding of the topic. It is a highly effective study guide. | Project includes most material needed to gain a comfortable understanding of the material but is lacking one or two key elements. It is an adequate study guide. | Project is missing more than two key elements. It would make an incomplete study guide. | Project is lacking several key elements and has inaccuracies that make it a poor study guide. |

