

# **I2T2 Final Project**

## **Graphing Linear Equations and Functions**

**by Beata Jankowski**

**November, 04**

**Title:** Graphing Linear Equations and Functions

**Algebra 1**

**Grade: 9**

Time Span: 5 days, regular schedule

**Sources Used:**

Algebra 1, Teacher's Edition, McDougal Littell, Evanston, IL: McDougal Littell A Houghton Mifflin Company, 2004

Algebra 1, Chapter 4 Resource Book, McDougal Littell, Evanston, IL: McDougal Littell A Houghton Mifflin Company, 2004

Internet Web Site: <http://www.classzone.com>

**Objectives for the unit:**

- Students will use linear equations and their graphs to model real-life situations
- They will draw and make predictions from scatter plots
- The students will graph linear equations using a variety of techniques, including a table of values, two points, and a point and the slope of the line.
- They will be able to identify equations of vertical, horizontal, and parallel lines.
- Students will use their graphs of linear functions to model and solve real-life problems.

**NCTM Standards addressed:**

1,3,5,6,9,10

**New York State Standards addressed:**

1A, 3A, 4A, 4B, 5A, 5B, 6B, 7A, 7B

## Materials and equipment needed:

### **Day 1**

- graphing calculator per student or a computer with spreadsheet software for each pair of students
- keystroke blackline (Chapter 4 Resource Book, p.15)
- overhead projector
- transparencies: Chapter 4 Resource Book, p.11, 12
- SE – Student Edition of the textbook
- TE – Teacher’s Edition of the Textbook

### **Day 2**

- Transparencies: Chapter Resource Book p.26, 27
- Overhead projector
- SE – Student Edition of the textbook
- TE – Teacher’s Edition of the textbook
- Chapter 4 Resource Book
- calculators

### **Day 3**

- Transparencies: Chapter Resource Book p. 38, 39
- Overhead projector
- SE – Student Edition of the textbook
- TE – Teacher’s Edition of the textbook

### **Day 4**

- Transparencies: Chapter 4 Resource Book p. 52
- 2 metric rulers per group
- 3-5 books per group
- Activity Support Master ( Chapter 4 Resource Book, p. 53)
- SE – Student Edition of the textbook
- TE – Teacher’s Edition of the textbook

## **Day 5**

- Transparencies: Chapter 4 Resource Book p.78
- Graphing calculator per student (or a computer with graphing software for each pair of students)
- Keystroke blackline ( Chapter 4 Resource Boo, p. 84)
- SE – Student Edition of the textbook
- TE – Teacher’s Edition of the textbook

## **Overview**

### **Day 1: Coordinates and Scatter Plots**

1. Opening – Daily Quiz
2. Main Activities
  - Plotting Points in a Coordinate Plane
  - Making a scatter plot
  - Describing Patterns from a Scatter Plot
  - Graphing a Scatter Plot
3. Closing Activities

### **Day 2: Graphing Linear Equations**

1. Opening – Daily Quiz
2. Main Activities
  - Verify Solutions of an Equation
  - Graphing a Linear Equation
  - Using a Graph of a Linear Model
  - Graphing  $y = b$
  - Graphing  $x = a$
3. Closing Activities

### **Day 3: Quick Graphs Using Intercepts**

1. Opening – Daily Quiz
2. Main Activities
  - Finding Intercepts
  - Making a Quick Graph
  - Drawing Appropriate Scales
  - Writing and Using a Linear Model

3. Closing Activities

**Day 4: The Slope of a Line**

1. Opening – Daily Quiz

2. Main Activities

- Finding the Slope of a Line
- Lines with Positive Slope, Zero Slope, Negative Slope and Undefined Slope

3. Closing Activities

**Day 5: Quick Graphs Using Slope- intercept Form**

1. Opening – Daily Quiz

2. Main Activities

- Writing Equations in Slope – Intercept Form
- Graphing Using Slope and y-intercept
- Identifying a Family of Parallel lines

3. Closing Activities

## **Day 1: Coordinates and Scatter Plots**

### **Goals:**

1. Plot points in a coordinate plane.
2. Draw a scatter plot and make predictions about real-life situations.

### **Opening Activity:**

1. Daily quiz: Chapter 4 ResourceBook, p. 11 (also Transparencies)

### **Main Activities:**

1. Lesson Opener ( Application): Chapter 4 Resource Book, p.12 (also Transparencies)
2. Examples 1-3: SE p.203-205, TE p.203-205
3. Technology Activity: Graphing a Scatter Plot: SE p. 209, TE p. 209

### **Closing Activities:**

1. Closure Question: TE p.205
2. Homework Assignment: SE 10-26 even, 27-32,35-38,42-52 even

## **Day 2: Graphing Linear Equations**

### **Goals:**

1. Graph a linear equation using a table or a list of values
2. Graph horizontal and vertical lines

### **Opening Activity:**

1. Daily Homework Quiz: TE p.208 ( Transparency)

### **Main Activities:**

1. Motivating the Lesson: TE p.211
2. Lesson Opener: Chapter 4 Resource Book, p.27 (also Transparency)
3. Examples 1-6: SE p.210-213
4. Guided Practice Exercises: SE p.214

### **Closing Activities:**

1. Closure Question: TE p.213
2. Homework Assignment: SE 12-35, 36-50 even

### **Day 3: Quick Graphs Using Intercepts**

#### **Goals:**

1. Find the intercepts of the graph of a linear equation
2. Use intercepts to make a quick graph of a linear equation in a real life problem

#### **Opening Activity:**

1. Daily Quiz: TE p. 217 ( Transparency)

#### **Main Activities:**

1. Motivating the Lesson: TE p.219
2. Lesson Opener (Activity): Chapter 4 Resource Book, p. 39 (Transparency)
3. Examples 1-4: SE p. 218- 220, TE p. 218 – 220
4. Guided Practice: SE p. 221, TE p.221

#### **Closing Activities:**

1. Closure Question: TE p. 220
2. Homework: Quiz 1: 1-16 SE p.224, TE p.224

### **Day 4: The Slope of a Line**

#### **Goals:**

1. Find the slope of a line using two of its points
2. Interpret slope as a rate of change in a real-life problem

### **Opening Activity:**

1. Daily Quiz: TE p. 223

### **Main Activities:**

1. Motivating the Lesson: TE p. 227
2. Examples: 1-6, p.226-229
3. Investigating Slope: Activity 4.4 SE p.225, TE p.225
4. Guided Practice: SE p.230, TE p.230

### **Closing Activities:**

1. Closure Question: TE p.229
2. Homework Assignment: Activity Assessment: TE p.225 ( Journal), SE 16-47 odd, 48,52,67,75,80,95

## **Day 5: Quick Graphs Using Slope-Intercept Form**

### **Goals:**

1. Graph a linear equation in slope-intercept form
2. Graph and interpret equations in slope-intercept form in a real-life

**Opening Activity:**

1. Daily Quiz: TE p. 233, Chapter 4 Resource Book p. 66 (Transparency)

**Main Activities:**

1. Motivating the Lesson: TE p. 242
2. Examples: SE 1-3 p.241-242, TE p.241-242
3. Technology Activity; SE p.248-249, TE p. 248-249
4. Guided Practice; SE p.244, TE p. 244

**Closing Activities:**

1. Closure Question: TE p.243
5. Homework: SE 1-19, p. 247, TE p. 247