Date: March 29, 2010 **Subject:** Algebra **Grade:** 7

Unit: Nonlinear Functions and Polynomials

Lesson: Linear and Nonlinear Functions Problem Solving

Source: Math Connects: Concepts, Skills, and Problem Solving by Day, et.al. (Volume 2, Teacher's Edition)

Student Teacher: Irma Crespo

Objective (Purpose):
Identify linear and nonlinear functions on word problems.

Michigan Curriculum Framework: Content Standard 1 and 2 for Middle School
***GLCE*:** A.PA.07.04; A.PA.07.05

Materials:
Pens, pencils, papers, practice worksheets

Procedure:

Anticipatory Set

- The routine of homework checking is implemented.
- The teacher gives a warm up of the key concepts from Chapter 9 that are useful for the current lesson.

Warm Up
Given $y = 4x - 8$, solve and fill in the following table.

x	0		4
y		0	

What are the coordinates of x and y intercepts?

x-intercept: (,) y-intercept: (,)

Graph the equation.

- After the discussion of the warm up solutions, the teacher goes over the lesson of linear and nonlinear functions on tables, graphs, and equations.
- This opens up the subject on problem solving using the guidelines discussed previously.

Questions to Check for Understanding

The lesson is focused on teaching students to identify linear and nonlinear functions in problem solving.

Questions cover recognizing the characteristics of linear functions on word problems to distinguish them from nonlinear functions.

Modeling/Guided and Independent Practice

- The teacher distributes the worksheets "Practice," "Word Problem Practice," and the group worksheets.
- The students are grouped into teams of four to five members.
- The teacher assigns which word problem on the "Word Problem Practice" worksheet they need to work on.
- When the fifteen minutes of group work elapse, each group presents its solution to the class.
- While the presentations are ongoing, each individual student should be writing down the solutions on their own worksheets.
- A whole class discussion follows every presentation for questions and clarifications.
- The "Word Problem Practice" worksheet is submitted for grading.

Closure Activity

- The teacher provides a summation of the lesson and reiterates the important concepts in determining linear and nonlinear functions.

Extension and Application

The students' homework, "Practice" on page 12, enhances the learning of the lesson.

Behavior Management Strategy

- Mix of lecture, interactive discussion, and teacher-assigned grouping for differentiated instruction.
- The guided practice reinforces the concept during the interactive lecture.
- The rubrics provide students the expectations for their presentations.

Assessment of Objectives

1. Evaluation of Student Learning

The teacher evaluates how much the students learned through the "Word Problem Practice" and the "Practice" worksheets, which fulfill the MCF standards on nonlinear functions.

Attachments: Practice worksheets, rubrics

Response Sheet for Groups 1-4

Problem Number: _____

Names: _____

Date: _____ Hour:_____

Encircle: Linear or Nonlinear

Equation:

What makes the equation linear or nonlinear?

Table:

What makes the table linear or nonlinear?

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Response Sheet for Groups 5-6

Problem Number: _____

Names: _____

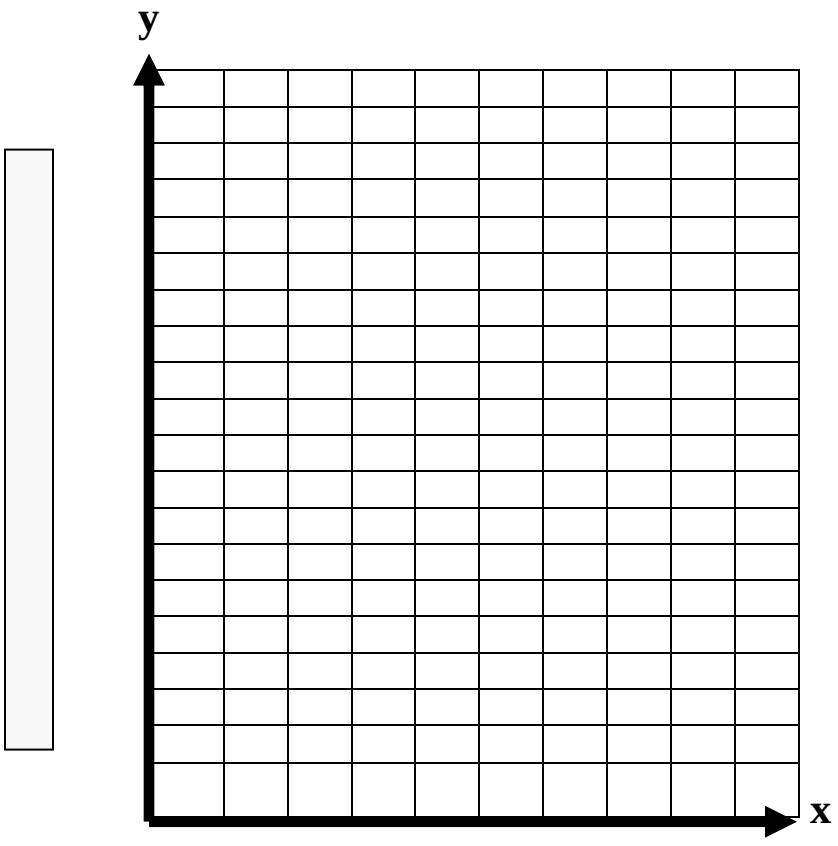
Date: _____ Hour:_____

Encircle: Linear or Nonlinear

Copy of the Table from the Problem:

What makes the table linear or nonlinear?

Graph:



GROUP PRESENTATION RUBRIC

Correct and Complete **10**	The answer is correct. The response is supported by relevant explanation. The explanation includes a correct representation, which can be in an algebraic equation, a graph, or a table.
Correct but Incomplete **9-8**	The answer is correct but it is not completely supported by a relevant explanation. The explanation includes an incomplete representation algebraically, graphically or in table form.
Partially Correct **6-7**	The answer is essentially correct but the explanation is not complete. The representation (algebraic equation, graph or table) is not correct and it does not relate to the given problem.
Incorrect with Reasonable Attempt **5**	The answer is incorrect but there is a reasonable attempt to solve the problem. The explanation does not include any representation (algebraic equation, graph or table).
Incorrect without Relevance **4**	The answer is incorrect. The supporting statements do not relate to the problem.
No Answer **0**	There was no attempt to find the answer.