**Student Teacher’s Name:** Lori Todd/Sean Grant **Date:** 2/12-15/13

**Grade Level** 7th **Topic/Unit: Patterns and Functions
School:** Spain **District:** DPS

**Lesson Plans**

Lesson plans are the basis for effective instruction. They provide a framework for organizing content, learning activities and materials; assessing students’ progress and evaluating one’s own teaching. Effective plans give confidence and security to the pre-service teacher and clearly state for supervisors what will be accomplished in the lesson. Use this format when writing detailed lesson plans.

**Content** Ordered pairs, function tables, and graphing

**Benchmarks**

**CCSS in Mathematics**

7. RP.2 Recognize and represent proportional relationships between quantities.

a. decide whether two quantities are in a proportional relationship e.g. by testing for a equivalent ratio in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

**Objectives**

Students will have a quiz on Sections 4-1 - 4-3. They have learned to plot and identify ordered pairs on a coordinate plane and identify and graph ordered pairs from a table of values. They have also learned to relate graphs to situations. They will be able to demonstrate their competence in using these new skills on the quiz and in future lessons.

**Learning Resources and Materials**

Pencils, markers, coordinate plane, graph paper, document reader, projector,

**Development of Lesson**

**Introduction**

I will give a brief explanation of what we will cover in today’s lesson. To gain the classes attention I will begin with a warm greeting letting the students know how good it is to see them and give them their agenda for the day. We will review some of the

**4-4 Vocabulary**

A **function** operates according to a rule to generate exactly 1 output for each and every input.

The **input** is the value substituted into the function.

The **output** is the value that is the result of the substitution of a given input into a function.

In a function, what is the input? The input is the value that you start with.

How do you find the output value for an input value? You use a rule that
 describes the function.

 In Example A, which variable represents the input? The variable x represents the
 input.

 What rule do you use to find the output for each value of x? 4x - 2

Which variable represents the output? The variable y represents the output.

How do you find the output, y, when the input value is x = -1? Substitute -1 for x
 in the expression 4x - 2, and simplify.

Explain how you can simplify the expression 4(-1) - 2. Multiply 4(-1): 4 • -1 = -4.
 Then subtract: -4- 2 = -6.

In Example 1B, what rule do you use to find the output for each value of x?

Although the powerpoint problems might be slightly different from the ones from the book steps involved to solve them will be similar.

**Methods/Procedures**

I will ask open-ended questions to get the students to do the thinking. We will start with a Do Now that will take about 10 minutes to complete after students write their Objective and Agenda for the day. We will then review the Do Now and then go through the powerpoint on section 4-4. I will play the 2nd video in section 4-4. There are three new vocabulary words on page 238 in section 4-4 that we will review together and that students will need to define for future reference. I will remind students that past vocabulary words and their definitions should also be in their math binders and that the 1st binder check will be this Friday, February 15, 2013.

Mr. Grant or I are explaining the lesson, students will be listening quietly to hear our directions. The new vocabulary words include the following; function, input and output

**4-4 Vocabulary**

A **function** operates according to a rule to generate exactly 1 output for each and every input.

The **input** is the value substituted into the function.

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Questions for students

In a function, what is the input? The input is the value that you start with.

How do you find the output value for an input value? You use a rule that
 describes the function.

 In Example 1A, which variable represents the input?

 The variable x represents the input.

 What rule do you use to find the output for each value of x?

Which variable represents the output? The variable y represents the output.

How do you find the output, y, when the input value is x = a certain number?
 Substitute that number in for x in the expression, and simplify.

During the next class period

I may review the taxi cab problem below and use it as an opener.

Taxi Cab problem: A taxi cab ride cost $2 plus $1.50 per additional mile. What is the cost of a taxi ride for the given miles:
2mi, 3mi, 3.5mi, 4mi, 4.5mi, 5mi, 5.5mi, and 6mi? y = **$2 + $1.50** x

|  |  |
| --- | --- |
| X  | Y |
| MilesTraveled | Taxi Cost |
| 2 |  $5 |
| 3 | $6.50 |
|  3.5 | $7.25 |
| 4 |  $8 |
|  4.5 | $8.75 |
| 5 | $9.50 |
|  5.5 |  $10.25 |
| 6 |  $11.00 |

 **Accommodations/Adaptations**

For students who have difficulty understanding ordered pairs and their relationship to tables, we will model by creating tables for the examples and discussing how to solve them The different learning levels will be addressed in the different models used to explain the problems. We will periodically check for understanding as we go through the lesson. As we teach the lesson we will circulate through the room to check to see if students as a group are having trouble or an individual student is having trouble. To ensure student have grasped or mastered concept they will be responsible for completing problems Independent Practice problems on pages 240-241 numbers 6 -11 and homework problems: 12-14 on page 241. Problem 15 can be completed for extra credit. Previous Homework problems 5,8a,b,12,13 on pages 234 – 235 and Focus on Problem Solving problems 1,and 2, are do for binder check.

**Over the break I plan to have students with their classmates or with their parents investigate why some common household bills vary from month to month or season to season. For example heating bills may increase in the winter and electric and water bills may increase in the summer. How are these changes reflected in the bills? Have students graph this information. We can discuss in class on our next meeting what their findings were. Have students create graphs to model the functions that they describe. For example; The heating bill is a function of temperature and the water bill is a function of the time of year. More water is used during the growing season.**

**Assessment/Evaluation**

Student’s performance will be evaluated based on their group work and their independent practice exercises and quiz and homework grades. The independent practice will go in the students’ mathematics binders as will homework and quizzes once checked and returned to students. Binder checks will occur monthly on Fridays.

**Closure**

After the class work is complete (with about 10 minutes of class left) we will recap and highlight what we’ve learned. Mr. Grant or I will cold call students, (randomly calling students) and also use a technique called Pepper, which is to ask various questions related to the lesson, to check again to see if students are grasping concept or we may give a ticket out the door problem to summarize the activities of the day to be turned in for credit. For the ticket out the door problem students can find the output of y= x^2 + 1 for each of the following inputs x= -2,-1,0,1, and 2 answers 5,2,1,2,5. Some of the questions asked may include the following;

Asking a student how would you take data from a table and convert it into sets of ordered pairs?

Which ordered pairs make up the origin?

Dependent on the success of the lesson with the first group we will modify the lesson as needed.

Next Class meeting Friday – Review Quiz

Then continue from above

**4-5 Vocabulary**

A **sequence** is an ordered list of numbers.

A **term** is what each number in a sequence is called.

In an **arithmetic sequence** the same amount is added each time to get the next term in the sequence.

The **geometric sequence** each term is multiplied by the same amount to get the next term in the sequence.

4-5 play videos 1-3 in this section and talk about it and the new vocabulary

Guided Practice page 244
1. add 13 equation y = 13 + n arithmetic

2. equation y = n \* .5 geometric