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Math 8A
Unit: Functions
Interpreting Distance Time Graphs and Functions Review
Thursday, November 13, 2014

Interpreting Graphs and Functions Review

1. Benchmarks/Standards:
    a. CCSS.MATH.CONTENT.8.F Construct a function to model a linear relationship between two quantities. Describe qualitatively the functional relationship between two quantities by analyzing a graph
    b. CCSS.MATH.CONTENT.8.F.A.1
    Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
    c. CCSS.MATH.CONTENT.8.F.A.2
    Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
    d. CCSS.MATH.CONTENT.8.F.B.5
    Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
    e. Standards of Mathematical Practice.2
    Reason abstractly and quantitatively.
    f. Standards of Mathematical Practice.3
    g. Construct viable arguments and critique the reasoning of others.
2. Learning Target(s):
    a. I can interpret continuous and discrete graphs.
    b. I can interpret information given in a graph and to make a graph to model a situation.
    c. I can represent functions with tables, graphs, or equations.
    d. I can interpret distance-time graphs.
    e. I can match graphs, tables and functions to situations.
3. Anticipatory Set:
    a. The Students will complete the “Making up Data for a Graph” Activity.
        i. The students will complete the table for the given graph by estimating the coordinate’s pairs.
    b. The teacher will have a student put their answers on the whiteboard to have the students compare their table.
4. Behavior Objective/Essential Question:
    a. Given a graph or table, the student will be able to determine where the tables, graph, and/or function matches a situation and justify their reasoning.
5. Input:
    a. Task Analysis:
        i. Homework check on Wednesday’s Worksheets on Lesson 3.3/3.4 Practice B.
            1. The teacher will show the answer key on the hover camera.

2. The teacher will read out the answers to the students while they check their homework. Any student questions will be discussed after all of the answers have been disclosed.
3. The teacher will work or re-explain out any problem the student(s) would like to review.

i. Students will finish their interpreting distance-time graphs posters from the previous lesson on interpreting Distance/Time graphs.
    1. The students will continue to work in the same small groups from the previous lesson.
    2. Students will match tables from Card Set C with the situations and graphs from the previous lesson.
        a. Each student in the small group must agree the tables match with the same graph and situation
        b. If students finish early, have them devise their own pair of cards.

ii. Students will share their posters once again with their classmates and share their reasoning as they did in the previous lesson.
    1. Students will walk around the room to see the other group's matches for the graphs, tables and situations and compare their reasoning with other groups.
    2. Students may want to make final changes to their posters and can glue them once they are completely satisfied.

iii. The class will have a discussion on their interpret graphs, tables and situations and whether the examples were a function or not.
    1. Questions:
        a. How can we match a graph, and table to a particular situation?
        b. After matching graphs to situations from yesterday's lesson, how were you able to match tables to them as well?
        c. What did you notice/observe?
        d. Look at your original responses and think about what you have learned in this lesson.
        e. Using what you have learned, try to improve you work and rematch the graph, and tables to the corresponding situation.

iv. After the class discussion on how to match graphs, and tables to situations by interpreting them, the students will work on their Lesson 3.3/3.4 quiz review for the remainder of the hour.

v. Questions:
    1. What does the domain and range of the relation tells us?
    2. How can you determine whether a graph or table is a function?

            3. Can you tell if a relation is function by just looking at the range? Why or why not?
            4. Describe the graph/table.
            5. Why do you need to look domain and range of the function by just looking at the range?
            6. How could you change the table/graph so that it does not represent a function?
            7. How could you change the table/graph so that it does represent a function?

6. Thinking Levels:
    a. Knowledge: What does tables and graphs tell us?
    b. Comprehension: In our interpreting distance-graph activity, why isn't any of these situations not a function?
    c. Application: Applying their understanding interpreting graphs and tables by matching them with a particular situation.
    d. Analysis- Compare/Contrast between the group's posters for their interpreting graphs and tables as well as matching them to situations.
7. Learning Styles:
    a. Auditory: Responding to questions and class discussions on interoperating graphs and functions
    b. Visual: Using the graph or table, determine what the domain and range and whether the graph/table is a function. Determine by the graph where it is an example of a continuous or discrete graph.
    c. Kinesthetic: Student's matching tables to situations and graphs and walking to see other group's posters to compare/contract their problem solving for interpreting distance-time graphs.
8. Methods and Materials:
    a. Ways of Presenting:
        i. Direct Instruction, Small groups, Group Discussion
    b. Materials needed:
        i. Making Up Data for a Graph" Activity
        ii. Students Interpreting Distance-Time Graph Posters
        iii. Classroom set of Card Set C: Tables of Data
        iv. Quiz Review
            1. Chapter 3: Ready to Go on? Page 134: Problems 19-21
            2. Chapter 3: Ready to Go on? Page 146: Problems 2, 3, 5-9
            3. Chapter 3 Test: Page 153: Problems 6-10
9. Modeling:
    a. Pick out a problem from the previous homework to reiterate a main conception and/or misconception from the previous class day.
        i. The students will have the teacher work out a problem they would like to review on the board from the previous night's homework (Practice 3.3/3.4 Practice B Worksheet)

10. Check for Understanding:
    a. Various Questioning Techniques
        i. Deeper Level of Knowledge- Explain, How, Why?
            1. Encourage the students to share how they would solve the problems.
            2. Is there only way to match up graphs, and tables with situations?
11. Independent Practice:
    a. The students will complete their quiz review assignment, practicing on how to interpret graphs and functions individually or in a small group.
        i. Chapter 3: Ready to Go on? Page 134: Problems 19-21
        ii. Chapter 3: Ready to Go on? Page 146: Problems 2, 3, 5-9
        iii. Chapter 3 Test: Page 153: Problems 6-10
12. Closure:
    a. Clarify any misconceptions the individual students are identifying while walking around seeing what they simplified; algebraic expressions and solving equations.