Lesson: Identifying Functions

Unit: Relationships between Quantities

1. Benchmarks/Standards:
   1. F.IF.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of the domain, then *f(x)* denotes the output of *f* corresponding to the input *x.* The graph of *f* is the graph of the equation .
   2. F.IF.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
2. Behavioral Objectives:
3. Anticipatory Set: Students will log into their computers, write on the board what they learned and questions they still have on the material, then will wait patiently to begin the activity.
4. Today we will be reviewing how to identify if given information identifies something as a function or not as a function through an interactive Jeopardy game. Students will continue to work on their assigned homework as well and if they have time do some of their Khan Academy videos.
5. Input
   1. Task Analysis:
      1. Work on anticipatory set
      2. Play Jeopardy Game
         1. Students will break into teams of 4 and will participate in a Jeopardy game to review whether something is a function given a mapping, table, graph, coordinates, or function.
      3. Discuss class expectations for course
      4. Work on homework, teachers will check for notebook completion
      5. Work on Khan Academy
   2. Thinking Levels:
      1. Comprehension: Students will understand that functions can only have one output for each input and must pass the vertical line test.
      2. Analysis: Students will analyze how this is seen in mapping, a table, a graph, a function, and coordinate points.
6. Learning Styles:
   1. Interpersonal: Students will be working as a whole class and will be able to have guided learning time in a relaxed manner.
   2. Remediation: Students will work at various levels in Khan Academy according to their intellect level.
   3. Visual: Students will visually see the examples and how they work via the Smart Board.
   4. Extension: Students will apply what they have learned to the homework.
7. Methods and Meanings:
   1. Ways of presenting:
      1. Game
      2. Group Work
      3. Lecture
      4. Class Discussion
      5. Independent Study/Work
   2. Materials needed:
      1. PowerPoint presentation on computer for Jeopardy game
      2. Smart Board for Jeopardy
      3. Whiteboards and markers for responses
      4. Personal computers for Khan Academy and Homework
8. Modeling:
   1. We will use the whiteboard to demonstrate why something is not a function
   2. We will review the class expectations from given grading sheets and on the whiteboard
   3. We will demonstrate how to solve problems on personal students’ homework
9. Checking for Understanding:
   1. What must be true about the domain for something to be a function?
   2. What must be true about the range for something to be a function?
   3. What test can be used on graphs to determine if something is a function?
   4. How can we tell if a mapping is not a function?
10. Guided Practice:
    1. Students will participate in Jeopardy as groups and work together to determine whether or not the given information indicates the material is a function or not.
    2. Students will work on their homework with assistance when necessary.
    3. Students will work on Khan Academy and watch videos to assist them with the problems.
11. Independent Practice:
    1. Homework
    2. Khan Academy
12. Closure:
    1. Evaluate the effectiveness of the Jeopardy game including the students’ understanding of the material, their ability to describe “why” something is/isn’t a function, and their ability to work with their group mates to reach an agreement on whether something is a function.
    2. Reflect on the students’ work efforts during homework time and Khan Academy including how on task they were, how much they were disrupting others, and how much progress they were able to make.
    3. Identify common misunderstandings and how they can be changed for the following week.