

Modeling Lesson Plan # 1 with the TI Model

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8th Grade Subject Topic: Linear Equation on the TI-84

Key Idea: Modeling/Multiple Representation for 4D.

Students will use mathematical modeling/multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationship.

Essential Question: How do I use the TI-84 hand held calculator to create graphic, interpret, and explain the data?

Objectives:

Students will be able to:

1. Define the linear equation and setup the equation on TI
2. Graph the linear equation on the TI
3. Demonstrate and explain how to find the pair (X,Y) using TABLE
4. Demonstrate and explain how to find the pair (X,Y) using TRACE
5. Demonstrate and explain how to find the pair (X,Y) using CALC
6. Determine if the pair (X,Y) is in the equation via plotting, and other functions
7. Apply the linear equation and graphing tools to real-life situations.

Vision:

I was thinking about beginning the class on TI GRAPHING by using the overhead with the essential question (above) presented to the students. To activate prior knowledge of linear equation, the class will discuss key concepts taught from previous lessons (slope, intercepts, coordinate pairs (x,y), constructing hand graphs, tables, interpreting, and communicating finding). Students will use this prior knowledge to connect with today's lesson, using the TI model. Students and I will discuss the essential question and they will have to write their responses in their journals. Afterward, I will place students (3-5) in cooperative groups by the similar responses they provided to the class. A scribe from each group will be asked to write their ideas on a transparency for the entire class to visualize each group's expectations. Next, as the initial training, I will demonstrate and explain to the class the basic TI key functions required to accomplish their expectations. This should consume about ten (10) minutes of class time. I will use the TI key functions Y=, GRAPH, TABLE, CALC (VALUE), and TRACE. For additional training and for students to gain more confidence in using the TI graphing tools, each group will be given problems (3-4) and provided with instructions on how to utilize each TI key function. Each student will be given a TI hand-held calculator. Groups will practice the key functions, and discuss, work, and reflect on each problem. In problems 1 and 2 the students will obtain the linear equation to graph and to answer the questions, in each problem, using the other key functions. Students can create their own problems and follow the questions in the current problems or create their own questions, with teacher approval. Students will assist each other in learning each problem, and key functions in detail. In the other problems, the students will have to read the problem,

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create the equation, enter it into the TI, and answer the all questions in each problem, using the TI Model functions. The teacher will assess and monitor each group by walking around, listening, asking questions to determine if students are engaging in each problem, understanding and respectful to each member. Students who are not cooperative with members in the group will be reminded of their group responsibilities, from the other group members reciting their responsibilities, as defined in the problem. The TI should provide the students with answers to the questions in each problem in an effective and efficient manner, once the TI key functions have been acquired. This will aid the students in answering questions regarding whether a point is on the equation, and finding or estimating other values on the equation. The independent's and dependent's increment values, and other information will be automatically calculated by the TI. The students just need to know how to retrieve that information in deriving and communicating decision to the class. Once all groups have completed the activities, problem # 5 will be presented on the overhead and each student will be asked to go the overhead and to enter the correct responses to each question. Problem # 5 is a detail real-life problem, where the students have to read, create an equation, enter into the TI, graph the equation, and answer specific question regarding the X and Y values in the equation, using the TI model. The last journal entry the students will record is regarding their answers to the essential questions.

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Rubric:

Score	Assessment/Accomplishments (In group and class in a respectful manner)
A	Student can share with group/call in a respectful manner the concepts regarding linear equation, can apply a real-life problem (#5), by presenting, interpreting, communicating, and connecting mathematical information and relationship, using the TI.
B	Student can demonstrate respectfully, explain and reflect on if several pairs of (X,Y) are in the equation using the TI.
C	Student can demonstrate respectfully, explain and reflect on how to use the key functions TRACE, TABLE, and CALC.
D	Students can define respectfully to group/class the equation, how to graph on the TI, and reflect.
F	Student has done or completed no work or activities.