CMST SCOLLARCITY Lesson Plan Template-Lesson Plan using **TI Technologies** (Due Tuesday, July 27th)

Submit as hard copy AND electronically through ANGEL

Name: Paul M. Geary
Grade level(s)/Subject taught: 8th grade Science
Objectives: (Remember…*How will the modeling tool help the student better learn the objective?)* The modeling tool will help student learning by providing quick, accurate, and consistent information, which can be easily graphed and result seen instantaneously.

Items to include in your TI Technologies lesson plan: (use *your* area/discipline/concepts).

For the math teacher:

1. *Write* the Mathematical Concept or "key idea" that TI Technologies will be used to teach: (e.g. Students use mathematical modeling/ multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships)

and/or…

For the Science teacher:

1b. *Write* the Science Concept or "key idea" that TI Technologies will be used to teach: (e.g. Organisms maintain a dynamic equilibrium that sustains life).

An organism's heart rate works to maintain a supply of oxygen to the body that will meet its changing demands.

For your **TI Technologies** lesson and using the following prompts, please provide a rich **one-page, single-spaced** description or a *vision* of your best thinking on a way or ways you might teach the planned lesson using the TI technology. Pay special attention to the modeling package in your description. Also, construct and submit a tentative rubric that you might use with your students. ** see example page 5

"...a rich **one-page, typed, single-spaced**, description or a *vision* of your best thinking…"

Prompts:

1. How will you assess the prior knowledge of the student?
2. How will you begin the lesson?
3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions and Student Actions
4. How will you assess the learning for the lesson?
5. How will TI be integrated into your teaching? (i.e. you may want to discuss a problem or describe how you might use the chosen modeling package in your plan. How does the model/tool help the concept(s) to be taught)?

Using class set of TI-83's and TI probe that measures heart rate, I plan on having my students…

Bell work question will be posted on PowerPoint for students to answer as they come in the class. The first question is what changes take place in your body as you increase the amount of activity that you do? Second, why do these changes take place. Student s will be given about 3 minutes to write down an answer. Volunteers will be asked to share their answerers with the class. After about 5 minutes of discussion and questioning the students will be shown a truck pulling a load up a hill. The same questions will be asked as before be pertaining to the truck and not the body. Hopefully students will realize a change in gas usage. The work = done the more energy used. Students will then asked to draw a prediction graph of what they think the gas usage might look like as certain demands are made on the truck. The teacher then asks of their guesses. When the truck has no load to pull will the energy usage be high or lower and so on. A data table of actual data is shared with the students depicting a number of events that the truck is consuming the gas. The students are now issued the TI-83's along with the heat rate probes. Working in groups of three, students are given instructions on how they are used and the students are given a work sheet with a data table, activities to do and record the results. Students do the activities such as sitting, walking, jumping, jogging, and then check their heart rate immediately after. They do this about 10 times recording each data point and then graphing their results on graph paper. The students are directed to label their activity on the graph at the peaks in order to understand their results. After the students are finished they are given a scenario such as, one day you were sitting on the side walk and you heard a noise over the fence. So you jump to your feet and try to look over the fence. You cannot so you begin to jump up and down in order to see what is going on. You then have a seat again on the sidewalk. After a minute you the hear the noise again and decide to jog around the fence to see what is going on. The story continues and the students are asked to use the data that they have to build a graph on the TI-83 that would depict the scenario. After their work is checked they are can act out the story and check their results. As a ticket out the door students are asked two questions, why does you heart rate need to increase when the activity becomes more demanding and why is it not good for our hearts to be pumping at the max all the time, this way the hate would not have to change? Students submit their work along with their tickets out the door.

Rubric for TI Heart Rate Activity

Ex:

Target (2 points)	Acceptable (1 points)	Unacceptable (0 points)
Students worked hard cooperatively without disruptions	Accomplished tasks, but was reminded about behavior and work.	Was not on task and/or disruptive, could not work as a group effectively.
Followed all directions and answered questions to the best of ability	Did not follow all directions and/ or complete assignment to best of ability	Incomplete work and hastily done without effort
Graphs are neat, accurate and based on data from the model.	Graphs missing data and/or some inaccuracy and/or not very creative	Graphs does not accurately depict data and messy work
Student is very capable of *describing the model to a small group of peers* and is able to respond meaningfully to questions about the model.	Student can describe the meaning of the model to peers with a significant degree of accuracy	Student has no clue
Defines exactly how the modeling software "helped" solve the problem.	Is able to give some indication of how the software "helped" solve the problem	Student has no clue

Total Point _____/10