

# Stella Lesson Plan

You should submit this form in addition to any computer generated files/documents/models to your group folder on Angel. Please create a .zip file and upload the group of files as a single archive.

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Grade level(s)/Subject taught: <i>Math 8 and accelerated math 8 (algebra)</i>
Objectives:  <i>This lesson introduces the students to a charity walk. The students look at three participants and start making decisions on which walking plan would be most beneficial to the charity.</i>

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. (approximately ½ page for the teacher role, ½ page for the student role). Also, construct a tentative rubric that you might use with your students (see example)

Items to include in your lesson plan: (Choose your discipline/concepts from your own area).

1. Write the Mathematical Concept or “key idea” that modeling 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)

<p><b>Mathematical Reasoning (Key Idea 1)</b> - students analyze mathematical situations, make conjectures, gather evidence, and construct an argument.</p> <p><b>Number and Numeration (Key Idea 2)</b> - students develop an understanding of the multiple uses of numbers in the real world, the use of numbers to communicate mathematically, and the use of numbers in the development of mathematical ideas.</p> <p><b>Operations (Key Idea 3)</b> - students use operations and relationships among them to understand mathematics.</p>
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Modeling/Multiple Representation (Key Idea 4) - students provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships.

Measurement (Key Idea 5) - students use measurement to provide a major link between the abstractions of mathematics and the real world.

Patterns/Functions (Key Idea 7) - students construct generalizations and describe patterns simply and efficiently.

and/or...

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

Materials:

"...a rich **one-page, 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?

Using \_\_\_\_\_ I plan on having my students...  
(software / modeling package(s))

This lesson is taken from the Connected Mathematics book, Moving Straight Ahead. This lesson will be used as a stepping stone for Investigation 2.3, "Walking for Charity."

Up to Investigation 2.3, students have been doing lessons on activities with a constant pattern. In Investigation 2.1, students made conjectures on who would make it to the yogurt shop based upon the walking rate of each person in the problem. In investigation 2.2, students start making tables and graphs of the given information. By the time students are at investigation 2.3, they will be responsible for making equations based upon the given situation.

The purpose of this lesson is to introduce the equation piece and have the students become familiar with the concept of writing an equation. The Stella program was written so the students will have a quick visual reference without having to make tables and graphs to answer the question. After this lesson is completed, the students will work on Investigation 2.3 in their books with their group members.

A worksheet will be passed out. The charity problem is at the beginning. The first question is meant to get the students focused on the three different walking plans. This question should go by quickly, about 5 minutes maximum. The students will see this question again when they work on Investigation 2.3.

Question 2 is meant for the students to realize two or more plans can give the same amount of money. This is leading towards finding the intersection on their graphs they will make of the three plans. The Stella program uses the bar graph because it is easy to see the heights of the bar graph. This question should take about 10 minutes.

Question 3 guides the students in making an equation based upon collecting \$20. The students can use Stella to help find the miles needed to collect \$20. This question helps the students start developing an equation to answer the problem. The students will get

more practice with equation writing throughout this unit. This question should take about 10 minutes.

The last question gets the students to analyze which plan would be the best to collect the most reasonable amount of money.

This activity allows the teacher to help the students with problems they may have had with past investigations. It also allows students who are ready for equation writing to practice that skill. The assessment will be how the students do on making the table, graph, and equations of the three plans in Investigation 2.3.

