8-8-2006

How to Find Slopes with STELLA

Ijeoma B. Okafor

The College at Brockport

Follow this and additional works at: http://digitalcommons.brockport.edu/cmst_lessonplans

Part of the Physical Sciences and Mathematics Commons, and the Science and Mathematics Education Commons

Repository Citation

http://digitalcommons.brockport.edu/cmst_lessonplans/153

This Lesson Plan is brought to you for free and open access by the CMST Institute at Digital Commons @Brockport. It has been accepted for inclusion in Lesson Plans by an authorized administrator of Digital Commons @Brockport. For more information, please contact kmyers@brockport.edu.
Ijeoma B. Okafor
Slope using Stella.

Prior Knowledge: The coordinate plane, graph the equation of the line \( y = 2x + 1 \)
From the line, form a triangle, and count the number of square Blocks on the y – axis divide it by the number of square blocks on the x- axis.

\[
\text{Slope} = \frac{\text{Rise}}{\text{Run}}
\]

Using the program STELLA, I will need 5 converters, 4 of which will be the input box and 1 will receive the output.
The converts will receive \( x_1, x_2, y_1, y_2 \), and the last converter will the formula of a slope.

We will investigate the all the possible outcomes. When the slope is positive, negative, zero, and undefined.

Assignment:
The students will either modify or construct a new Stella to find the distance of a line.

\[
D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}
\]

RUBRIC

<table>
<thead>
<tr>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to construct stella without mistakes. Make sure that output works well.</td>
<td>Complete the program but the output is does not work.</td>
<td>Unable to complete the program.</td>
<td>No idea, completely clueless.</td>
</tr>
</tbody>
</table>
Generic Lesson Plan Template

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.

Name: Ijeoma B Okafor

Grade level(s)/Subject taught: Mathematics 9th Graders

Objectives: How do we find the slope of a line using STELLA.

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)

Key Idea 5: Measurement:

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))*
**Example:** “I was thinking about beginning the class on [modeling X] by using the overhead