21st Century Lesson Cycle Template

Grade: 10

Subject: Math 10 PreIB Textbook: Foundations and Pre-Calculus Mathematics 10 By Pearson Topic 5: Systems of Linear Equations

Driving Question:

How can we use the TI-84 Graphing Calculator to solve systems of linear equations?

Specific Curriculum Outcome:

RF10 Students will be expected to solve problems that involve systems of linear equations in two variables, graphically and algebraically

Prior Knowledge:

- Order of Operations and Solving Linear Equations
- Rearranging Equations
- Solving systems of equations algebraically

Screencast Link(s):

1. Prior knowledge:

Order of Operations and Solving - <u>https://www.youtube.com/watch?v=jBymEbgDJXM</u> Rearranging Equations - <u>https://www.youtube.com/watch?v=LPjgc3w46b8</u> Solving Systems of Equations - <u>https://www.youtube.com/watch?v=ZmecwD6vhxc&feature=youtu.be</u> Entering equations into the graphing calculator - <u>https://www.youtube.com/watch?v=ZCWsNMSImpQ</u>

2. Solving systems using the TI-84 Graphing Calculator - https://youtu.be/tDjzl6SbjuA

Link to "We Do" Practice Questions:

http://www.kutasoftware.com/FreeWorksheets/Alg1Worksheets/Systems%20of%20Equations%20Graphing.pdf

Link to Exit Card:

http://msltam.weebly.com/uploads/5/5/7/3/55739509/exit_card.pdf

Expected Time: One Class (75 minutes)

Resources: (Tools & Tech)

Lesson Procedure

Prior knowledge screencasts linked to teacher website. Students can preview this prior to the lesson, or they can watch it in class if needed.	 I do: Review prior knowledge that is directly applicable to this lesson:
Demonstration of how to solve systems of equations using the graphing calculator screencast linked to teacher website.	Note: This corresponds to the "We Do" part of the lesson. A demonstration of how to solve systems of equations using the graphing calculator will be made available to those who need it. Note: This would be a modification to the lesson
BYOD: To allow students the opportunity to work at a pace that best suits their learning, they will watch the video on their own devices (with headphones).	3. Following the video, a class discussion can be had in order to clarify anything that may still be ambiguous to students.
	□ find, validate □ critical thinking □ remember, understand □ analyze, synthesize □ collaborate, communicate
Solving Systems of Equations with Elimination Solving Systems of Equations with Substitution Solving Systems of Two Linear Equations	<i>You do:</i> Students will complete 3 Khan Academy practice questions to make sure they have a good understanding of yesterday's lesson on solving systems of equations algebraically.
	 ☐ find, validate ☐ critical thinking ☐ remember, understand ☐ analyze, synthesize ☐ collaborate communicate

	We do:	
Practice Questions Graphing Calculator Steps	In pairs, students will use the suggested website (Mathbits.com) to try and figure out how they might use the graphing calculator to solve a system of equations. A few practice questions will be provided for them. At this point, students have had experience in using the graphing calculator so they should be able to follow the steps. However, the teacher can help students who have any issues.	
11111	☐ find, validate	
	□ remember, understand □ evaluate, leverage	
	□ collaborate, communicate □ analyze, synthesize	
	We share:	
<u>Additional Practice</u>	At the end of class, volunteers will be asked to demonstrate what they have learned to the class. The teacher will provide one of the additional practice questions to allow students to do their demonstration. This will be done using SmartView Software, which will allow the teacher to project a graphing calculator on the LCD projector so that the entire class can see what is happening. Trouble shooting strategies can be shared if technological difficulties arise during the students' demonstration.	
	□ find, validate □ critical thinking	
COLOR DELLARCO	□ remember, understand □ evaluate, leverage	
	□ collaborate, communicate □ create, publish	
WRAP UP/REMINDERS		
Students will be asked to review all of today's material for homework in preparation for tomorrow's class. Students will be reminded that if they require additional time to practice on the graphing calculators that they can come in during extra help.		
Differentiation:		
Modification:	Enrichment:	
Students who have difficulty figuring out the calculator steps can watch the screencast . If students need to re-watch a step they have the ability to do so.	Students who are able to quickly grasp how to use the graphing calculator will be encouraged to assist their classmates who may be having a difficult time. As well, they will be encouraged to explore other types of systems of equations (Example 3 from the same webpage they used for figuring out the calculator steps is a good starting point for them.)	

Evaluation:

During the class, as students are working, the teacher should be circulating and assisting students where necessary. This will provide the teacher with the opportunity to see how students are progressing in this lesson. At the end of the class, the teacher will be able to assess students' understanding of the topic when they are given the opportunity to demonstrate their calculator skills to the class. As well, before leaving class, students will be asked to complete the **exit card** so that students can indicate to the teacher where they are still having difficulty.

Teacher Reflection:

On-Line Resources:

Question on Solving a System of Equations by Substitution from KhanAcademy.org Question on Solving a System of Equations by Elimination from KhanAcademy.org Question on Solving a System of 2 Linear Equations from KhanAcademy.org Graphing Calculator Steps from MathBits.com "We Do" Practice Questions free from Kuta Software