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 do we solve systems of linear equations algebraically?

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

Screencast Link(s):

1. Prior knowledge:
    Order of Operations and Solving - https://www.youtube.com/watch?v=jBymEbgDJXM
    Rearranging Equations - https://www.youtube.com/watch?v=LPjgc3w46b8
2. Solving Systems of Equations - https://www.youtube.com/watch?v=ZmecwD6vhxc&feature=youtu.be

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.
 	
Solving systems of equations algebraically screencast
	I do:
	
	1. Review **prior knowledge** that is directly applicable to this lesson:
	   - Order of Operations
	   - Solving Linear Equations
	   - Rearranging Equations
	
	2. Give **examples** of how to solve systems of equations algebraically.

linked to teacher website. Students can preview this prior to the lesson if they would like. **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 videos, 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**
[“Rags to Riches” Online Game](#)	*You do:* Students will play the game "Rags to Riches" found [here](#). It will give students to chance to check their understanding on how to use algebra to solve systems of equations.
	☐ find, validate ☐ **critical thinking** ☐ remember, understand ☐ analyze, synthesize ☐ **collaborate, communicate**
[Online Systems of Equations Practice Questions](#)	*We do:* In pairs, students will go to [this site](#), which will generate random systems of equations problems. Students will click "Give me a problem!" to get a question to work on and then they can check their answer by clicking "What's the answer?" Students will be given the time to work through a few of these questions together but will be expected to do at least 3 questions. Any issues can be resolved within their pairing and/or with the help of the teacher.
	☐ find, validate ☐ **critical thinking** ☐ remember, understand ☐ evaluate, leverage ☐ **collaborate, communicate** ☐ analyze, synthesize
	We share: At the end of class, students will have a final debrief. Groups will be given the opportunity to share their problem-solving strategies. Any questions or issues will be discussed to make sure that all students have a good understanding of how to solve systems of equations algebraically.
	☐ find, validate ☐ **critical thinking** ☐ remember, understand ☐ evaluate, leverage ☐ **collaborate, communicate** ☐ analyze, synthesize

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 asked to submit the work they did to solve the questions they worked on in groups (a minimum of 3 questions per group).

Differentiation:

Modification:	Enrichment:
Allowing students to watch the video on their own devices allows them to work at their own pace. If students need to re-watch a step they have the ability to do so.	Students who have a strong grasp of algebra and systems of equations can be partnered up with students who may be struggling so that they can provide them with some assistance. As well, those who have completed the work for today's class can try solving systems of equations with 3 variables. Sample questions are available here.

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 share their answers with the class. Before leaving the class, students will be asked to submit the work they did for the 3 questions they completed in pairs. This will be evaluated by the teacher to check students' understanding of how to solve systems of equations algebraically.

Teacher Reflection:

On-Line Resources:
Online systems of equations game free from Quia.com
Online practice questions free from CoolMath.com
Sample 3-variable systems of equations questions free from Kuta.com