

21st Century Lesson Cycle Template

Grade: 10

Subject: Math 10 PreIB

**Textbook: Mathematics for the International
Student Pre-Diploma SL and HL
(second edition)**

by Haese & Harris

Topic 4: Linear Equations

Driving Question:

How can we use technology (TI-84 Graphing Calculator) to graph linear equations?

Specific Curriculum Outcome:

RF04 Students will be expected to describe and represent linear relations using words, ordered pairs, table of values, graphs and equations.

RF05 Students will be expected to determine the characteristics of the graphs of linear relations, including the intercepts, slope, domain, and range.

RF6 Students will be expected to relate linear relations to their graphs expressed in slope-intercept form

Prior Knowledge:

- Graphing linear equations in slope-intercept form by hand
- Rearranging and solving equations

Screencast Link(s):

1. Prior knowledge:
 - Graphing Linear Equations by Hand - <https://www.youtube.com/watch?v=wYeRkxgyqGo>
 - Rearranging Equations - <https://www.youtube.com/watch?v=LPjgc3w46b8>
 - Solving Simple Equations - <https://www.youtube.com/watch?v=jBymEbgDJXM>
2. Entering Equations into the TI-84 Calculator - <https://www.youtube.com/watch?v=zCWsNMSlmpQ>
3. Adjusting the Window and Using the Zoom - <https://www.youtube.com/watch?v=eMzVVfXNPMM>
4. Using the Trace Button - <https://www.youtube.com/watch?v=AecP6x0xWtY>

Link to graphing linear equations worksheet (free from Kuta Software):

<http://www.kutasoftware.com/FreeWorksheets/Alg1Worksheets/Graphing%20Lines%20SL.pdf>

Link to Partner Graphing Calculator Activity:

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

Expected Time: One Class (75 minutes)

Resources: (Tools & Tech)	Lesson Procedure
<p>Prior knowledge screencast linked to teacher website. Students have the option of previewing this prior to the lesson, or they can watch it in class if needed.</p> <p>Graphing Calculator Screencasts linked to teacher website. Students have the option of previewing this prior to the lesson, or they can watch it in class.</p> <p>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).</p>	<p><i>I do:</i></p> <ol style="list-style-type: none">1. Review prior knowledge that is directly applicable to this lesson:<ul style="list-style-type: none">- Graphing linear equations by hand- Rearranging and solving equations2. Yesterday’s lesson provided students with the necessary skills to be able to graph linear equations by hand. Today, students will use the TI-84 graphing calculator to graph similar equations. There are 3 screencasts, each focusing on a different aspect needed to produce a useful graph: entering the equation, adjusting the window/zooming in on the most ideal part of the graph and using the trace button.3. Following the videos, a class discussion can be had in order to clarify anything that may still be ambiguous to students.
	<p>find, validate remember, understand collaborate, communicate</p> <p>critical thinking analyze, synthesize</p>
<p>Graphing Linear Equations Worksheet</p> <p>BYOD: Students can make use of their own devices for this activity. However, graphing calculators will be provided for students who do not have their own.</p>	<p><i>You do:</i></p> <p>Following the class examples, students will try graphing with the TI-84 on their own. They will use the same worksheet from yesterday. Since they now have the answers to those questions, it will let them to check answers easily.</p>

	find, validate remember, understand collaborate, communicate	critical thinking analyze, synthesize
Graphing Calculator Partner Activity	<p><i>We do:</i></p> <p>Students will partner up with a classmate in order to solidify their understanding of how to graph using the TI-84. Within their pairs, they will each create questions (which meet the requirements as specified on the handout which will be provided). Then, they will practice using the graphing calculator by completing each other's questions.</p>	
	find, validate remember, understand collaborate, communicate	critical thinking evaluate, leverage analyze, synthesize
	<p><i>We share:</i></p> <p>At the end of class, there will be a final debrief. Groups will share what they have learned from today's class. Strategies for troubleshooting (i.e. if groups experienced any calculator problems) will be shared as well.</p>	
	find, validate remember, understand collaborate, communicate analyze, synthesize	critical thinking evaluate, leverage create, publish
WRAP UP/REMINDERS: Students will be asked to review all of today's material for homework in preparation for tomorrow's class.		
Differentiation:		
Modification: 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 can.	Enrichment: Students who have a strong grasp of linear functions and using the graphing calculator can be partnered up with students who may be struggling so that they can provide them with some assistance.	
Evaluation: Students will be informally evaluated during the class. The teacher will make general observations while circulating throughout the class to make sure all students are on track. As well, the partner activity will be handed in so that the teacher can see students' progress and assign a grade for their work.		
Teacher Reflection:		
On-Line Resources: Graphing Linear Equations Worksheet provided free from Kuta Software		