21st Century Lesson Cycle Template

Grade: 10

Subject: Math 10 PreIB
Textbook: Foundations and Pre-Calculus Mathematics 10 By Pearson
Topic 4: Linear Equations

Driving Question:

Can we construct some understanding of how linear equations can be related to real-life situations?

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:

- Plotting points on a Cartesian plane
- Determining the slope of a line
- Slope-intercept form of a linear equation

Screencast Link(s):

1. Prior knowledge:
   Plotting points on a Cartesian plane - https://www.youtube.com/watch?v=Rue5DlI4igk
   Determining the slope of a line - https://www.youtube.com/watch?v=g1yzEKJQjeI
   Slope-Intercept form of a linear equation - https://www.youtube.com/watch?v=UguPdZH5jDo

Link to Investigating Graphs Activity:

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

Expected Time: One Class (75 minutes)

Resources: (Tools & Tech)	**Lesson Procedure**

Prior knowledge screencasts linked to teacher website. Students have the option of previewing this prior to the lesson, or they can watch it in class if needed. **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).	***I do:*** 1. Review **prior knowledge** that is directly applicable to this lesson: - Plotting points on a Cartesian Plane - Determining the slope of a line - Slope-intercept form of the equation of a line 2. Assign the "Investigating Graphs" Activity to the class. Have students read through the instructions individually (*"You Do" part of the lesson*). Then, have students pair up to do the appropriate measurements and to collect data from their classmates. Then, each student will create their own graph based on the data they collected. Then, they will discuss and answer the questions included with the activity. This corresponds the *"We Do" part of the lesson plan.*
	☐ find, validate ☐ **critical thinking** ☐ remember, understand ☐ analyze, synthesize ☐ **collaborate, communicate**
Investigating Graphs Activity	***You do:*** Students will read through the instructions for the day's activity. Any questions can be addressed prior to having students form their pairs.
	☐ find, validate ☐ **critical thinking** ☐ remember, understand ☐ analyze, synthesize ☐ **collaborate, communicate**
	We do: In groups of 2, students will do the appropriate measurements, collect their data and then draw the graphs. Then, they will discuss and answer the questions that are provided with the activity.
	☐ find, validate ☐ **critical thinking** ☐ remember, understand ☐ evaluate, leverage ☐ **collaborate, communicate** ☐ analyze, synthesize
BYOD: Students can access Padlet.com using their own devices. Or, one of school's laptops booked out by the teacher.	***We share:*** At the end of class, there will be a final debrief. Groups will share what they have from doing the individual and group activity. The teacher can create a page on Padlet.com so that it can be used as means to allow students to contribute their thoughts. Alternatively, if the technology is not available, this can be done on the board or on chart paper.

	☐ 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:	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 linear functions 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, students will be asked to compete the **online poll** prior to leaving the class. This can be done on their own devices or on one of the school laptops.

Note: The online poll will be created here

Questions/Answers to include:

1) I understand how to compare graphs
   a) Yes b) No
2) I understand how to relate the slope of a line to the rate of change
   a) Yes b) No
3) I understand how to find the axes intercepts
   a) Yes b) No
4) I understand how to relate the axes intercepts to the word problem
   a) Yes b) No
5) After finishing today's work, I…
   a) Feel pretty comfortable with application problems involving linear equations
   b) Think I understand what we did today but could use a refresher of the main ideas in tomorrow's class
   c) Am lost…I need extra help

Teacher Reflection:

On-Line Resources:
Online Poll created for free at pollmaker.com