

## 21<sup>st</sup> 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 do we determine the equation of a line?

### 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

### Screencast Link(s):

1. Prior knowledge: Graphing Linear Equations - <https://www.youtube.com/watch?v=wYeRkxgyqGo>
2. Determining the Equation of a Line - <https://www.youtube.com/watch?v=UguPdZH5jDo>

### Link to Partner Online Quiz:

[http://www.softschools.com/quizzes/algebra/linear\\_equations\\_with\\_a\\_slope\\_a\\_point/quiz4932.html](http://www.softschools.com/quizzes/algebra/linear_equations_with_a_slope_a_point/quiz4932.html)

**Expected Time: One Class (75 minutes)**

**Resources:  
(Tools & Tech)**

**Lesson Procedure**

**Prior knowledge** screencast linked to teacher website. Students have the

*I do:*

1. Review **prior knowledge** that is directly applicable to this lesson:
  - Graphing linear equations by hand

option of previewing this prior to the lesson, or they can watch it in class if needed.

**Determining the Equation of a Line Screencast** linked to teacher website. Students can preview this prior to the lesson, or they can watch it in class.

**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).

2. Do **examples** on determining the equation of a line (in general and slope-intercept form).
  
3. Following the videos, a class discussion can be had in order to clarify anything that may still be ambiguous to students.

- |  |   |
|--|---|
| <input type="checkbox"/> find, validate                  | <input type="checkbox"/> <b>critical thinking</b> |
| <input type="checkbox"/> remember, understand            | <input type="checkbox"/> analyze, synthesize      |
| <input type="checkbox"/> <b>collaborate, communicate</b> |   |

Students have a copy of the textbook.

**You do:**  
Following the class examples, students will work on questions from their textbook: Ex 5E.1 #1-3 (page 121).

- |  |   |
|--|---|
| <input type="checkbox"/> find, validate                  | <input type="checkbox"/> <b>critical thinking</b> |
| <input type="checkbox"/> remember, understand            | <input type="checkbox"/> analyze, synthesize      |
| <input type="checkbox"/> <b>collaborate, communicate</b> |   |

[Linear Equations Online Quiz](#)

**We do:**  
Students will partner up with a classmate to check their answers and to offer each other some constructive criticism. Then, they will complete the [online quiz](#) together. When they finish, they will take a screenshot of their results and email the image to the teacher

- |  |   |
|--|---|
| <input type="checkbox"/> find, validate                  | <input type="checkbox"/> <b>critical thinking</b> |
| <input type="checkbox"/> remember, understand            | <input type="checkbox"/> evaluate, leverage       |
| <input type="checkbox"/> <b>collaborate, communicate</b> | <input type="checkbox"/> analyze, synthesize      |

[Online MindMap](#)

**We share:**  
At the end of class, there will be a final debrief. Groups will share what they have learned from today's class. As a class, they will create a list of tips/strategies for determining the equation of a line. This list will be posted on chart paper in the classroom for their later use. Alternatively, this can be done online at this [website](#) and then saved for students to refer to at a later date if needed.

- |  |   |
|--|---|
| <input type="checkbox"/> find, validate                  | <input type="checkbox"/> <b>critical thinking</b> |
| <input type="checkbox"/> remember, understand            | <input type="checkbox"/> evaluate, leverage       |
| <input type="checkbox"/> <b>collaborate, communicate</b> | <input type="checkbox"/> <b>create, publish</b>   |
| <input type="checkbox"/> analyze, synthesize             |   |

**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 have the ability to do so.

**Enrichment:**

Students who have a strong grasp of linear equations 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 group quiz will provide some feedback as to where students are in their understanding of this topic.

**Teacher Reflection:**

**On-Line Resources:**

[Linear Equation Quiz](#) provided free from Softschools.com  
[Online Mind Map](#) created through bubbl.us