

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 3: Distance, Midpoint and Gradient

Driving Question:

How can we apply distance, midpoint and gradient?

Specific Curriculum Outcome:

RF03 Students will be expected to demonstrate an understanding of slope with respect to rise and run, line segments and lines, rate of change, parallel lines, and perpendicular lines

Prior Knowledge:

- Gradient formula
- Midpoint formula
- Distance formula

Screencast Link(s):

1. Prior Knowledge:
 - Distance - https://www.youtube.com/watch?v=Cf7GyA_N0aw&feature=youtu.be
 - Midpoint - <https://www.youtube.com/watch?v=YL4R0DRf1WM>
 - Gradient - <https://www.youtube.com/watch?v=g1yzEKJQjeI>
2. Application Example - <https://youtu.be/oahpoWAI4Kg>
3. Class Practice Question - <https://youtu.be/NWeNVqDrRm0>

Link to Mimio Vote Quiz on Distance, Midpoint and Gradient:

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

Expected Time: One Class (75 minutes)

Resources:
(Tools & Tech)

Lesson Procedure

Prior knowledge screencast linked to teacher website. Students should be doing this prior to the class as they have a **Mimio Vote Quiz** on these topics today.

Mimio Vote Quiz

Examples of Applications of distance, midpoint and slope screencast linked to teacher website. Students have the option of previewing 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).

I do:

1. Review **prior knowledge** that is directly applicable to this lesson:
 - Distance
 - Midpoint
 - Gradient

2. Administer **Mimio Vote Quiz**
Note: Teachers who have access to Mimio Vote, can upload these questions into the program in order to give this as a Mimio Vote Quiz. If this is not an option, you can simply print off the questions and have students complete it on paper. A PDF copy of the quiz is included in this lesson plan.

3. Do **examples** to demonstrate some of the applications of distance, midpoint and slope

4. Following the videos, a class discussion can be had in order to clarify anything that may still be ambiguous to students.

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

Screencast practice question with solutions.

You do:

Students will try a simple application problem on their own. This question will be available through a screencast video. They will be encouraged to pause the video in order to give themselves time to complete the question. Once they have attempted it, they can check their answers by watching the end of that video.

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	<p><i>We do:</i></p> <p>In small groups of 2-3, students will work on textbook questions: Ex 5D #1-6 (pages 117-118)</p>						
	<table border="0"> <tr> <td><input type="checkbox"/> find, validate</td> <td><input type="checkbox"/> critical thinking</td> </tr> <tr> <td><input type="checkbox"/> remember, understand</td> <td><input type="checkbox"/> evaluate, leverage</td> </tr> <tr> <td><input type="checkbox"/> collaborate, communicate</td> <td><input type="checkbox"/> analyze, synthesize</td> </tr> </table>	<input type="checkbox"/> find, validate	<input type="checkbox"/> critical thinking	<input type="checkbox"/> remember, understand	<input type="checkbox"/> evaluate, leverage	<input type="checkbox"/> collaborate, communicate	<input type="checkbox"/> analyze, synthesize
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	<p><i>We share:</i></p> <p>At the end of class, groups will be asked to present their solution to one of the assigned questions.</p>						
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<p>WRAP UP/REMINDERS:</p> <p>Students will be asked to complete any of the questions that they did not complete in class.</p>							
<p style="text-align: center;">Differentiation:</p>							
<p>Modification:</p> <p>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. If needed, students can create and do worksheet questions together.</p>	<p>Enrichment:</p> <p>Students who have a strong grasp of how to apply distance, midpoint and gradient to word problems can assist their classmates who may be having difficulty. Students can also attempt to create their own questions that make use of distance, midpoint and gradient.</p>						
<p>Evaluation:</p> <p>The results from the Mimio Vote Quiz are available as soon as students submit their answers. This will give the teacher a good indication of students' understanding of distance, midpoint and gradient so far. As well, students will be informally evaluated on their ability to apply these formulas to word problems during the class. The teacher will make general observations while circulating throughout the class to make sure all students are on track. In addition, when students are sharing their solutions, the teacher will be able to assess where students are in terms of their ability to work with distance, midpoint and gradient.</p>							

Teacher Reflection:

On-Line Resources: