

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: Gradient

Driving Question:

What is 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:

- Cartesian Plane
- Order of Operations

Screencast Link(s):

1. Prior Knowledge:
Cartesian Plane Review - <https://www.youtube.com/watch?v=Rue5DII4igk>
Order of operations - <https://www.youtube.com/watch?v=2cqbJBcwCt8>
2. Gradient - <https://youtu.be/g1yzEKJQjel>
3. Gradient Practice Questions - <https://youtu.be/uIvPbfOEe84>

Link for Midpoint Formula Comprehension Check:

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

Link for Gradient Worksheet Template:

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

Expected Time: One Class (75 minutes)

| Resources: (Tools & Tech) | Lesson Procedure |
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| <p>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.</p> <p>Introduction to Gradient screencast 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. Administer the short comprehension check on Midpoint. 2. Review prior knowledge that is directly applicable to this lesson: <ul style="list-style-type: none"> - Cartesian Plane - Order of Operations 3. Introduce gradient. 4. 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>Practice Questions with Answers Screencast</p> | <p><i>You do:</i></p> <p>Following the introduction to gradient, students will be asked to practice drawing lines with different gradients (these will be given at the end of the video). Students can check their answers on their own by watching the end of the video.</p> |
| | <p>find, validate remember, understand collaborate, communicate</p> <p>critical thinking analyze, synthesize</p> |

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| <p><u>Gradient Worksheet Template</u> for students</p> | <p><i>We do:</i></p> <p>In pairs, students will make sure they have a good understanding of gradient. Each student will create questions which will be completed by their partner. They will fill out the template provided in order to ensure that different types of questions are included as a part of this exercise.</p> | | |
| | <table border="0"> <tr> <td>find, validate remember, understand collaborate, communicate</td> <td>critical thinking evaluate, leverage analyze, synthesize</td> </tr> </table> | find, validate remember, understand collaborate, communicate | critical thinking evaluate, leverage analyze, synthesize |
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| | <p><i>We share:</i></p> <p>After students have had the chance to complete each other's questions, groups will have the opportunity to share what they did with the class. This will give them the opportunity check each other's answers and ask questions if they have any</p> | | |
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| <p>WRAP UP/REMINDERS:</p> <p>Students will be asked to review the material covered in today's class in preparation for tomorrow's class, which will focus on further applications of gradient.</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 work gradient can assist their classmates who may be having difficulty.</p> | | |
| <p>Evaluation:</p> <p>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. The partner activity</p> | | | |

will allow the teacher to determine if students need further instruction, or if they are ready to move into the next topic related to gradient.

Teacher Reflection:

On-Line Resources: