

## 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 2:** Midpoint

### **Driving Question:**

How can we determine the midpoint of any line segment?

### **Specific Curriculum Outcome:**

**RF08** Students will be expected to solve problems that involve the distance between two points and the midpoint of a line segment.

### **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. Midpoint Formula - <https://www.youtube.com/watch?v=YL4R0DRf1WM>

### **Link for Distance Formula Quiz:**

[http://msltam.weebly.com/uploads/5/5/7/3/55739509/quiz\\_distance\\_formula.pdf](http://msltam.weebly.com/uploads/5/5/7/3/55739509/quiz_distance_formula.pdf)

### **Link for Midpoint Formula Practice Sheet (from Mathworksheets4kids.com):**

<http://www.mathworksheets4kids.com/straight-lines/midpoint-formula.pdf>

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

<b>Resources: (Tools &amp; Tech)</b>	<b>Lesson Procedure</b>
<p><b>Prior knowledge screencasts</b> linked to teacher website. Students can watch these videos if they need a reminder of these skills.</p> <p><b>Midpoint formula screencast</b> linked to teacher website. Students have the option of previewing this prior to the lesson, or they can watch it in class.</p> <p><b>BYOD:</b> 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"> <li>Administer the short quiz on the distance formula.</li> <li>Review prior knowledge that is directly applicable to this lesson: <ul style="list-style-type: none"> <li>Plotting points on the Cartesian Plane</li> <li>Order of operations</li> </ul> </li> <li>Discuss midpoint and derive the formula for determining the midpoint of any line segment. Provide some examples of how to apply the formula.</li> <li>Following the videos, a class discussion can be had in order to clarify anything that may still be ambiguous to students.</li> </ol>
	<p>find, validate remember, understand <b>collaborate, communicate</b></p> <p><b>critical thinking</b> analyze, synthesize</p>
<p><a href="#"><u>Midpoint Practice worksheet</u></a></p>	<p><i>You do:</i></p> <p>Following the videos, students will work on midpoint questions provided to them in class.</p>
	<p>find, validate remember, understand <b>collaborate, communicate</b></p> <p><b>critical thinking</b> analyze, synthesize</p>
	<p><i>We do:</i></p>

	Students will be given the opportunity to discuss their solutions and any issues they may encounter within small groups (2-3) while the teacher circulates to make sure everyone is on track.	
	find, validate remember, understand <b>collaborate, communicate</b>	<b>critical thinking</b> evaluate, leverage analyze, synthesize
	<i>We share:</i>  After students have had the chance to discuss their solutions, the teacher will bring the class together for a final debrief. A review of the main concept will be done (verbally with reference to the lesson's videos). Following this, students will have the opportunity to ask for further clarification on anything they still do not fully understand.	
	find, validate remember, understand <b>collaborate, communicate</b> analyze, synthesize	<b>critical thinking</b> evaluate, leverage <b>create, publish</b>
<b>WRAP UP/REMINDERS:</b>  Students will be asked to review all of today's material and to complete any of the assigned questions that they have not yet done. Students will be given a few more examples of how to use the midpoint formula in tomorrow's class, which will be a work period.		
<b>Differentiation:</b>		
<b>Modification:</b>  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.	<b>Enrichment:</b>  Students who have a strong grasp of how to work with the midpoint formula can assist their classmates who may be having difficulty.	
<b>Evaluation:</b>  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 debrief, which will be done at the end of class, will give the teacher an idea of where students are in terms of their understanding of the topic.		

**Teacher Reflection:**

**On-Line Resources:**

[Midpoint Formula Worksheet](#) provided free from MathWorksheets4Kids.com