IB AA SL Y1 Topic 3 Planner

Teacher(s)	Emily Foster	Subject group and course	IB Analysis & Approaches		
Course part and topic	Topic 3: Geometry & Trigonometry	SL or HL/Year 1 or 2	SL, Year 1	Dates	7 weeks

Unit description and texts	DP assessment(s) for unit
Geometry & trig allows us to quantify the physical world, enhancing our spatial awareness in two and three dimensions. This topic provides us with the tools for analysis, measurement and transformation of quantities, movements and relationships.	Topic 3 Summative Assessment: This test will cover all content in Topic 3, plus previous content from Topics 1 & 2 to prepare for IB exam. Questions for the cumulative assessments come from released questions in the IB Questionbank. Each summative assessment is cumulative with the majority (60-75%) of the test coming from the content covered between summative assessments.

INQUIRY: establishing the purpose of the unit

Transfer goals
List here one to three big, overarching, long-term goals for this unit. Transfer goals are the major goals that ask students to "transfer" or apply, their knowledge, skills, and concepts at the end of the unit under new/different circumstances, and on their own without scaffolding from the teacher.
Students should be able to: ● Students should be able to understand the properties of shapes and how they depend on the dimension they occupy in space. ● Students should be able to understand and apply the principles that trigonometric functions of angles may be defined on the unit circle, which can visually and algebraically represent the periodic or symmetric nature of their values. ● Students should be able to conceptualize different representations of the values of trigonometric relationships, such as exact or approximate, may not be equivalent to one another.

ACTION: teaching and learning through inquiry

Content/skills/concepts—essential understandings	Learning process
	Check the boxes for any pedagogical approaches used during the unit. Aim for a variety of approaches to help facilitate learning.
Students will know the following content: <u>Students will know the following content:</u> Distance between two points in 2D and 3D and their midpoint Unit circle values (radians, degrees, and coordinate points) Trig Identities Sine Rule, Cosine Rule Right Triangle Trig Volume & Surface area of 3D objects Double Angles Characteristics of Sine & Cosine functions <u>Students will develop the following skills:</u> Obtaining values from the unit circle Calculating arc length and sector area Solve for tangent on the unit circle Solve for missing values in a right or non-right triangle Find area of a non-right triangle <u>Students will grasp the following concepts:</u> The sine and cosine rule are used to solve non-right triangles and can help find lengths of sides when the pythagorean theorem does not apply. The unit circle is divided into four quadrants that contain all the coordinate points for the sine and cosine functions.	Learning experiences and strategies/planning for self-supporting learning: ☒ Lecture ☐ Socratic seminar ☒ Small group/pair work ☒ PowerPoint lecture/notes ☐ Individual presentations ☒ Group presentations ☒ Student lecture/leading ☐ Interdisciplinary learning Details: ☐ Other/s: Each section will start with direct instruction and introduction from the instructor. Students will work in small groups to solve problems and complete explorations – some will be consistent across groups, some will be unique allowing for each group/individual to have time to present their work. Discussions regarding method, alternate approaches, and efficiency will be regularly included in the class.

	Formative assessment:
	Hwk Quiz: Memorize Unit Circle
	Hwk Quiz: Graphing Sine & Cosine, Arc Length, Sector Area
	Hwk Quiz: Solving Trig Equations
	Summative assessment:
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	Questions for the cumulative assessments come from released questions in the IB Questionbank. Each summative assessment is cumulative with the majority (60-75%) of the test coming from the content covered between summative assessments.
	Differentiation:
	☒Affirm identity—build self-esteem
	☒Value prior knowledge
	☒Scaffold learning
	☒ Extend learning
	Details:
	This unit will utilize prior knowledge of sine, cosine, and tangent to build and extend their knowledge on deriving the unit circle, the sine rule, and the cosine rule.

Approaches to learning (ATL)

Check the boxes for any explicit approaches to learning connections made during the unit. For more information on ATL, please see the guide.

☒Thinking

☒ Social

☒ Communication

☒ Self-management

☒ Research

Details: Thinking Social and communicating by working in pairs, warm ups, group presentations

Self-management: homework is always available but is not checked for completion. Homework and notes can be used for IB hwk quizzes

Students will research periodic functions by analyzing weather data, then writing a sine or cosine equation

Language and learning	TOK connections	CAS connections
Check the boxes for any explicit language and learning connections made during the unit. For more information on the IB's approach to language and learning, please see the guide.	Check the boxes for any explicit TOK connections made during the unit	Check the boxes for any explicit CAS connections. If you check any of the boxes, provide a brief note in the "details" section explaining how students engaged in CAS for this unit.
☒Activating background knowledge ☒ Scaffolding for new learning ☒ Acquisition of new learning through practice ☒ Demonstrating proficiency Details: Students must utilize background knowledge of content vocabulary from Geometry to complete many of the concepts in Topic 3. New learning is scaffolded through progression practice. Topic 3 will build new vocabulary through exploration and practice.	☐ Personal and shared knowledge ☐ Ways of knowing ☐ Areas of knowledge ☐ The knowledge framework Details: N/A Students will consider the following TOK question in pairs: Which is a better measure of an angle, radians or degrees? What criteria should mathematicians use to decide which measurement is more appropriate?	☐ Creativity ☐ Activity ☐ Service Details: N/A

Resources

List and attach (if applicable) any resources used in this unit

Resources include:
--iNThinking Platform
--IB Resources (www.ibo.org)
--IB QuestionBank
--Teacher guided notes
–MyiMaths