IB AA HL Y1 Unit 1 - Topic 2 Planner

Teacher(s)	Mikayla Smith Baillio	Subject group and course	IB Analysis & Approaches		
Course part and topic	Topic 2: Functions (SL 2.1-2.11, AHL 2.12-2.14) Including Standards SL 1.7 & AHL 1.16	SL or HL/Year 1 or 2	HL, Year 1	Dates	5-6 weeks

Unit description and texts	DP assessment(s) for unit
Functions are models that are depictions of real-life events using expressions, equations or graphs, and relations involving one or more variables. Students will create different representations of functions.	Topic 2 Summative Assessment 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:
- Represent different functions, graphically and symbolically, and provide different ways to communicate mathematical relationships
- Understand the parameters of a function or equation that represent different physical quantities in spatial dimensions
- Move between different forms to represent functions
- Understand that equivalent representations of quadratic functions can reveal different characteristics of the same relationship
- Change the window when graphing functions to best suit the needs of the function application

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: Parallel & Perpendicular Lines Key Features of graphs Inverse functions Composite functions Quadratic functions/inequalities Rational functions Exponential functions Logarithmic functions Systems of Linear Equations Odd/Even Functions Polynomial Functions Students will develop the following skills: Utilize function notation Perform transformations on different functions Use of technology to find the intersection of two functions Solve Quadratic functions in different forms Solve Log and Exponential Functions in different forms Solve Rational Functions in different forms Systems of equations can be carried out by a variety of equivalent algebraic and graphical methods. Students will grasp the following concepts: The discriminant predicts the number and type of solutions of the quadratic equation. The domain and range set the parameters of the function and its characteristics.	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: IB Questionbank Practice problems TOTD – quick checks
	Summative assessment: Topic 2 Summative Assesment 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 solving quadratics and function characteristics to build and extend their knowledge on solving radical, rational, logarithmic and exponential functions.

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 other patterns within Pascal's triangle and present to class

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 Algebra 2 to complete many of the concepts in Topic 2. New learning is scaffolded through progression practice. Topic 2 will build new vocabulary through exploration and practice.	☒ Personal and shared knowledge ☐ Ways of knowing ☐ Areas of knowledge ☐ The knowledge framework Details: Students will consider the following TOK question in pairs: Do you think mathematics or logic should be classified as a language?	☐ Creativity ☐ Activity ☐ Service Details: n/a

Resources

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

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