IB AA HL Yr 2 Unit 5 Topic 4 Planner - Statistics and Probability

Teacher(s)	Joanna Smith	Subject group and course	Mathematics – Analysis and Approaches		
Course part and topic	Unit 5 - Statistics and Probability Topic 4: AHL 4.13, 4.14 Review of SL Statistics (ASL 4.1 – 4.12)	SL or HL/Year 1 or 2	HL, Yr 2	Dates	March

Unit description and texts	DP assessment(s) for unit
Both statistics and probability provide important representations which enable us to make predictions, valid comparisons and informed decisions. Text – Oxford Mathematics Analysis and Approaches HL Ch. 11 Section 1 - 3	IB SL Review of Standards 4.1 - 4.12 Unit 5 Test - Topic 4 Questions for the cumulative assessments come from released questions in the IB Question bank. Each summative assessment is cumulative by semester with the majority (60-75%) of the test coming from the content covered between summative assessments. Content will also include daily warmup topics from the time period between assessments (review of SL topics)

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: ●   make informed choices, to evaluate risk, and to make predictions about seemingly random events.

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: ● How Bayes theorem can be used to calculate probability. ● How linear transformations on a RV affect $E(X)$ and $Var(X)$ Students will develop the following skills: ● Use of formula to calculate Variance, Standard Deviation, and Expected Value. ● Use to tree diagrams or two way frequency tables to organize events and use them to calculate probabilities. Students will grasp the following concepts: ● Organizing, representing, analysing and interpreting data and utilizing different statistical tools facilitates prediction and drawing of conclusions. ● Different statistical techniques require justification and the identification of their limitations and validity. ● Approximation in data can approach the truth but may not always achieve it. ● Some techniques of statistical analysis, such as regression, standardization or formulae, can be applied in a practical context to apply to general cases. ● Modelling through statistics can be reliable, but may have limitations	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: Most lessons 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. ☐ Other/s:

	Formative assessment: IB AA HL Practice problems Textbook practice problems SL Review Question Sets from Question bank
	Summative assessment: Unit 5 Summative Questions for the cumulative assessments come from released questions in the IB Question bank. Each summative assessment is cumulative by semester with the majority (60-75%) of the test coming from the content covered between summative assessments. Content will also include daily warmup topics from the time period between assessments (review of SL topics)
	Differentiation: ☐Affirm identity ☒Value prior knowledge ☐Scaffold learning ☒ Extend learning Details: The aim of the AHL content in the calculus topic is to extend and build upon the aims, concepts and skills from the SL content. Students are introduced to further conditional probability theory in the form of Bayes Theorem and properties of discrete and continuous random variables are further explored.

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 - making connections within the content and applications

Social – partner work

Communication – utilizing the language and notation of mathematics

Self- Management - students will have problems sets to complete that will need to be balanced with their other time commitments and responsibilities.

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 will use the language of mathematics in connection to prior knowledge of calculus from IB AA SL. Students will learn new vocabulary, formats and notation related to Calculus and gain mastery of them through practice.	☒ Personal and shared knowledge ☐ Ways of knowing ☒ Areas of knowledge ☐ The knowledge framework Details: ● Does the applicability of knowledge vary across the different areas of knowledge? What would the implications be if the value of all knowledge was measured solely in terms of its applicability? ● Is mathematics more or less useful than other areas of knowledge for solving problems?	☐ Creativity ☐ Activity ☐ Service Details: N/A

Resources
List and attach (if applicable) any resources used in this unit
Textbook - Mathematics: Analysis and Approaches HL (Oxford – 2019) (Ch. 11 sections 1 - 3) IB QuestionBank Revision Village Website videos and Question banks

Stage 3: Reflection—considering the planning, process and impact of the inquiry

What worked well	What didn't work well	Notes/changes/suggestions:
List the portions of the unit (content, assessment, planning) that were successful	*List the portions of the unit (content, assessment, planning) that were not as successful as hoped*	*List any notes, suggestions, or considerations for the future teaching of this unit*