

MATH MCS MYP UNIT PLANNER

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| Teacher(s) | Echo Fritch | Subject group and discipline | Accelerated Geometry B/Algebra 2 | | |
| Unit title | Unit 4 Applications of Probability (GaDOE Accelerated Geo B/Alg II Unit 3) | MYP year | 5 | Unit duration (hrs) | 12 Hours (3 weeks) |

Inquiry: Establishing the purpose of the unit

| Key concept | Related concept(s) | Global context |
|---|---------------------------------|-------------------------------------|
| Logic | Generalization Justification | Scientific and Technical Innovation |
| Statement of inquiry | | |
| Logic is used to generalize and justify new concepts in scientific and technical innovation while incorporating real-world principles. | | |
| Inquiry questions | | |
| <p>Factual— What is sample space?</p> <p>Conceptual— How are sets and their relationships used to calculate probabilities? How do we find the probability of independent and mutually exclusive events? How do we calculate the probability of overlapping events? What is the difference when calculating independent events versus dependent events?</p> <p>Debatable— When would you use theoretical probability versus experimental probability?</p> | | |
| MYP Objectives | Assessments | |

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| MYP Objective A: Assessment | Common Unit Quiz Common Unit Test |
| Approaches to learning (ATL) | |
| <ul style="list-style-type: none"> Identify trends and forecast possibilities Collect, record, and verify data | |

Action: Teaching and learning through inquiry

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| Content Standards |
| <p><u>Understand independence and conditional probability and use them to interpret data</u></p> <p>MGSE9-12.S.CP.1 Describe categories of events as subsets of a sample space using unions, intersections, or complements of other events (<i>or, and, not</i>).</p> <p>MGSE9-12.S.CP.2 Understand that if two events A and B are independent, the probability of A and B occurring together is the product of their probabilities, and that if the probability of two events A and B occurring together is the product of their probabilities, the two events are independent.</p> <p>MGSE9-12.S.CP.3 Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$. Interpret independence of A and B in terms of conditional probability; that is, the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.</p> <p>MGSE9-12.S.CP.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. <i>For example, use collected data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.</i></p> <p>MGSE9-12.S.CP.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. <i>For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.</i></p> <p><u>Use the rules of probability to compute probabilities of compound events in a uniform probability model</u></p> <p>MGSE9-12.S.CP.6 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in context.</p> <p>MGSE9-12.S.CP.7 Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answers in context.</p> |
| Learning Activities and Experiences |

| Topic | Resources | Content Addressed | Standards Addressed |
|---|--|--|---|
| Probability | 12-1 Probability Events Pearson enVision pg. 499 – 506 | <ul style="list-style-type: none"> Use set notation and Venn diagrams to calculate probabilities Calculate probabilities of independent events Calculate probabilities of mutually exclusive events | CP.1 CP.2 CP.7 |
| | 12-2 Conditional Probability Pearson enVision pg. 507 – 513 | <ul style="list-style-type: none"> Understand the conditional probability of A given B as the fraction of outcomes in B that also belong to A. Interpret independence of events in terms of conditional probability. Use a two-way frequency table to decide if events are independent and to approximate conditional probabilities | CP.3 CP.4 CP.5 CP.6 |
| | Probability of Overlapping & Dependent Events | <ul style="list-style-type: none"> Calculate the probability of overlapping events | CP.7 |
| | Haunted House of Probability Teacher Created Resource | <ul style="list-style-type: none"> Unit 3 GSE Probability Standards | CP.1, CP.2, CP.3, CP.4, CP.5, CP.6, CP.7 |
| | Additional Resources: Teacher Created Notes Savvas Resources: 3-Act Task Place Your Guess Pearson enVision pg. 514 | | |
| Personalized Learning and Differentiation | | | |
| <p>Teachers differentiate by providing examples (work samples or task-specific clarifications of assessment criteria); structuring support (advance organizers, flexible grouping, peer relationships); establishing flexible deadlines, and adjusting the pace.</p> <ul style="list-style-type: none"> -SWD/504- Accommodations provided -ELL- Five Principle ELL Curriculum Framework and Vocabulary Supports -Intervention Support- Re-teaching Activities in Small Groups with Progress Monitoring -Extensions- Enrichment Tasks and Projects | | | |
| Resources | | | |
| DOE Instructional Frameworks Pearson enVision and Pearson Realize Online Resources | | | |