

Chapter 12 Planning Chart: Probability

Cross-Curricular Competency: Achieves his/her potential. The Getting Started and Lessons 4 and 6 provide students with an opportunity to work alone and use their previously gained knowledge and problem solving skills to further their understanding of mathematics.

Broad Area of Learning: Media Literacy. Throughout the chapter, students' understanding of probability can be placed into the context of understanding facts and figures that they encounter in the media. One example is in the introduction to Lesson 6, regarding weather forecasts.

Content	QEP Concepts	QEP Processes	Addressing Concepts and Processes
Getting Started: Which Is More Likely?, pp. 400–401			Assessment Opportunity: Use steps A-F and Questions 1–6.
Lesson A: Introduction to Probability	<p><i>Probability: Random Experiment</i></p> <ul style="list-style-type: none"> • Random experiment • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Sample space 	<p><i>Probability: Processing Data From Random Experiments</i></p> <ul style="list-style-type: none"> • Enumerating possibilities using different types of representations: tree diagram, network, table, etc. 	<p>New Lesson Student Resource Teacher Resource</p> <p>A network can be used as a supplement to these activities to help students visualize the total possible outcomes in a given situation. A network is a representation that consists of nodes (points) and edges (lines). For example, imagine 3 cities (City A, City B, City C) in which 4 roads connect City A to City B and 5 roads connect City B to City C. If you wanted to determine the total number of ways to get from City A to City C, a simple network could be created with three nodes in which 4 edges connect node A to node B and 5 edges connect node B to node C. Students would then multiply 4 by 5 to obtain the total number of possible ways to get from City A to City C, which is 20.</p>
Lesson 1: Exploring Theoretical and Experimental Probabilities, pp. 402–403	<p><i>Probability: Random Experiment</i></p> <ul style="list-style-type: none"> • Random experiment • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Theoretical probability and experimental probability 	<p><i>Probability: Processing Data From Random Experiments</i></p> <ul style="list-style-type: none"> • Calculating the probability of an event <p><i>Statistics: Processing Data From Statistical Reports</i></p> <ul style="list-style-type: none"> • Organizing and choosing certain tools to present data: <ul style="list-style-type: none"> • Constructing graphs: bar graphs, broken-line graphs, circle graphs 	Omit Prompt H and Question 2.
Mental Math: Estimating Percents, p. 403	<p><i>Arithmetic: Number Sense With Regard to Decimal and Fractional Notation and Operation Sense</i></p> <ul style="list-style-type: none"> • Reading, writing, various representations, patterns, properties • Fractional, decimal and exponential (integral exponent) notation; percentage, square root 	<p><i>Arithmetic: Operations Involving Numbers Written in Decimal and Fractional Notation</i></p> <ul style="list-style-type: none"> • Estimating and rounding numbers in different situations • Looking for equivalent expressions • Use of a calculator; operations and sequences of operations performed in the proper order 	
Lesson 2: Theoretical and Experimental Probabilities, pp. 404–407	<p><i>Probability: Random Experiment</i></p> <ul style="list-style-type: none"> • Random experiment • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Theoretical probability and experimental probability 	<p><i>Probability: Processing Data From Random Experiments</i></p> <ul style="list-style-type: none"> • Calculating the probability of an event 	

Content	QEP Concepts	QEP Processes	Addressing Concepts and Processes
Lesson 3: Calculating Probabilities, pp. 408–410	<p><i>Probability: Random Experiment</i></p> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Sample space • Event <ul style="list-style-type: none"> • Simple, complementary, compatible, incompatible, dependent and independent events • Theoretical probability and experimental probability 	<p><i>Probability: Processing Data From Random Experiments</i></p> <ul style="list-style-type: none"> • Enumerating possibilities using different types of representations: tree diagram, network, table, etc. • Calculating the probability of an event 	<p>A network can be used as a supplement to these activities to help students visualize the total possible outcomes in a given situation. A network is a representation that consists of nodes (points) and edges (lines). For example, imagine 3 cities (City A, City B, City C) in which 4 roads connect City A to City B and 5 roads connect City B to City C. If you wanted to determine the total number of ways to get from City A to City C, a simple network could be created with three nodes in which 4 edges connect node A to node B and 5 edges connect node B to node C. Students would then multiply 4 by 5 to obtain the total number of possible ways to get from City A to City C, which is 20.</p>
Lesson B: Probability Events	<p><i>Probability: Random Experiment</i></p> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Sample space • Event <ul style="list-style-type: none"> • Simple, complementary, compatible, incompatible, dependent and independent events 		<p>New Lesson Student Resource Teacher Resource</p>
Curious Math: Factorials!, p. 411			<p>Beyond Cycle One. Do not assess. Note: Factorial notation may be introduced in cases that involve counting. This type of notation makes it easier to write out certain operations, which can be performed efficiently using technology. Using a graphical representation, students should be able to enumerate situations involving arrangements and combinations. Finding and using counting formulas is not part of the curriculum for this option.</p>
Mid-Chapter Review: pp. 412–413			<p>Assessment Opportunity</p>
Lesson 4: Solve Problems Using Organized Lists, pp. 414–417	<p><i>Probability: Random Experiment</i></p> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Sample space • Theoretical probability and experimental probability 	<p><i>Probability: Processing Data From Random Experiments</i></p> <ul style="list-style-type: none"> • Enumerating possibilities using different types of representations: tree diagram, network, table, etc. • Calculating the probability of an event 	<p>A network can be used as a supplement to these activities to help students visualize the total possible outcomes in a given situation. A network is a representation that consists of nodes (points) and edges (lines). For example, imagine 3 cities (City A, City B, City C) in which 4 roads connect City A to City B and 5 roads connect City B to City C. If you wanted to determine the total number of ways to get from City A to City C, a simple network could be created with three nodes in which 4 edges connect node A to node B and 5 edges connect node B to node C. Students would then multiply 4 by 5 to obtain the total number of possible ways to get from City A to City C, which is 20.</p>
Lesson 5: Using Simulations to Determine Probability, pp. 418–420	<p><i>Probability: Random Experiment</i></p> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Theoretical probability and experimental probability 	<p><i>Probability: Processing Data From Random Experiments</i></p> <ul style="list-style-type: none"> • Calculating the probability of an event 	

Content	QEP Concepts	QEP Processes	Addressing Concepts and Processes
Lesson C: Exploring Probabilities	<i>Probability: Random Experiment</i> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Sample space • Event <ul style="list-style-type: none"> • Certain, probable and impossible events • Theoretical probability and experimental probability 		New Lesson Student Resource Teacher Resource
Lesson D: Computing Probabilities	<i>Probability: Random Experiment</i> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Sample space • Event <ul style="list-style-type: none"> • Certain, probable and impossible events • Simple, complementary, compatible, incompatible, dependent and independent events • Theoretical probability and experimental probability 	<i>Probability: Processing Data From Random Experiments</i> <ul style="list-style-type: none"> • Calculating the probability of an event 	New Lesson Student Resource Teacher Resource
Lesson 6: Designing a Probability Model, p. 421	<i>Probability: Random Experiment</i> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Theoretical probability and experimental probability 	<i>Probability: Processing Data From Random Experiments</i> <ul style="list-style-type: none"> • Calculating the probability of an event 	
Math Game: On a Roll, p. 422	<i>Probability: Random Experiment</i> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Theoretical probability and experimental probability 		Optional
Chapter Self-Test: p. 423			Self-Assessment Opportunity
Chapter Review: pp. 424–425			Assessment Opportunity
Chapter Task: Free Throw, p. 426	<i>Probability: Random Experiment</i> <ul style="list-style-type: none"> • Random experiment <ul style="list-style-type: none"> • Random experiments involving one or more steps (with or without replacement, with or without order) • Outcome of a random experiment • Theoretical probability and experimental probability 	<i>Probability: Processing Data From Random Experiments</i> <ul style="list-style-type: none"> • Calculating the probability of an event 	Assessment Opportunity
Chapters 10–12 Cumulative Review: pp. 427–429			Assessment Opportunity Select from Questions 1–3, 6, 12–18.