

## ILCA Pre-Algebra Curriculum Map (updated 2021-2022)

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| <p><b>1st quarter</b><br/> <u>August</u>: Introductions and Procedures (3 Days)<br/> <u>August/September</u>: Chapter 1: The Language of Algebra (11 Days)<br/> <u>September/October</u>: Chapter 2: Operations With Integers (10 Days)<br/> <u>October</u>: Chapter 3: Operations With Rational Numbers (10 Days)</p> | <p><b>2nd quarter</b><br/> <u>October/November</u>: Chapter 4: Powers and Roots (11 Days)<br/> <u>November</u>: Chapter 5: Ratio, Proportion, and Similar Figures (13 Days)<br/> <u>November/December</u>: Chapter 6: Percents (10 Days)</p>           |
| <p><b>3rd quarter</b><br/> <u>January</u>: Chapter 7: Algebraic Expressions (10 Days)<br/> <u>January/February</u>: Chapter 8: Equations and Inequalities (12 Days)<br/> <u>February/March</u>: Chapter 9: Linear Functions (12 Days)</p>  | <p><b>4th quarter</b><br/> <u>March</u>: Chapter 10: Statistics and Probability (11 Days)<br/> <u>April</u>: Chapter 11: Congruence, Similarity, and Transformation (14 Days)<br/> <u>April/May</u>: Chapter 12: Volume and Surface Area (12 Days)</p> |

### Unit 1 Rational Numbers and Exponents

**Days of Instruction: 11 Days**

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| <p><b>Standards and Objectives</b><br/> <a href="#">PA.A.2.1</a>, <a href="#">PA.A.3.1</a>, <a href="#">PA.A.3.2</a></p>  | <p><b>Essential Questions for Students</b><br/>         How can you use numbers and symbols to represent mathematical ideas?</p>   |
| <p><b>Chapter 1 The Language of Algebra</b><br/>         1.1 A Plan for Problem Solving<br/>         1.2 Words and Expressions<br/>         1.3 Variables and Expressions<br/>         1.4 Properties of Numbers<br/>         1.5 Problem-Solving Strategies<br/>         1.6 Ordered Pairs and Relations<br/>         1.7 Words, Equations, Tables, and Graphs</p> | <p><b>Vocabulary</b><br/>         Algebra, algebraic expression, coordinate plane, coordinate system, counterexample, deductive reasoning, defining a variable, domain, equation, evaluate, four-step plan, graph, guess, check and revise, look for a pattern, make a table, numerical expression, order of operations, ordered pair, origin, properties, range relation, simplify, variable, work backward<br/>         x-axis, y-axis, y-coordinate</p> |
| <p><b>Assessments</b><br/>         Mid Chapter Quiz<br/>         Chapter 1 Test</p>   | <p><b>Resources</b><br/>         TI-30XS calculator, desmos, and XL Math</p>   |

**Unit 1 Rational Numbers and Exponents****Days of Instruction: 10 Days**

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| <b>Standards and Objectives</b><br><a href="#">P.A.A.3.1</a> , <a href="#">P.A.A.3.2</a>   | <b>Essential Questions for Students</b><br>What happens when you add, subtract, multiply and divide integers?                                      |
| <b>Chapter 2 Operations with Integers</b><br>2.1 Integers and Absolute Value<br>2.2 Adding Integers<br>2.3 Subtracting Integers<br>2.4 Multiplying Integers<br>2.5 Dividing Integers<br>2.6 Graphing in Four Quadrants | <b>Vocabulary</b><br>Negative number, positive number, integer, opposites, coordinate, inequality, absolute value, < - less than, > - greater than |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 2 Test   | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math  |

**Unit 1 Rational Numbers and Exponents****Days of Instruction: 10 Days**

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| <b>Standards and Objectives</b><br><a href="#">P.A.A.3.1</a>   | <b>Essential Questions for Students</b><br>What happens when you add, subtract, multiply, and divide rational numbers? |
| <b>Chapter 3 Operations with Rational Numbers</b><br>3.1 Fractions and Decimals<br>3.2 Rational Numbers<br>3.3 Multiplying Rational Numbers<br>3.4 Dividing Rational Numbers<br>3.5 Adding and Subtracting Like Fractions<br>3.5 Adding and Subtracting Unlike Fractions | <b>Vocabulary</b><br>Repeating decimal, terminating decimal, bar notation  |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 3 Test   | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math  |

**Unit 1 Rational Numbers and Exponents****Days of Instruction: 11 Days**

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| <b>Standards and Objectives</b><br><a href="#">PA.N.1.1</a> , <a href="#">PA.A.1.2</a> , <a href="#">PA.A.1.3</a> , <a href="#">PA.A.1.4</a> , <a href="#">PA.A.1.5</a> , <a href="#">PA.A.3.2</a>  | <b>Essential Questions for Students</b><br>Why is it useful to write numbers in different ways? |
| <b>Chapter 4 Powers and Roots</b><br>4-1 Powers and Exponents<br>4-2 Negative Exponents<br>4-3 Multiplying and Dividing Monomials<br>4-4 Scientific Notation<br>4-5 Compute with Scientific Notation<br>4-6 Square Roots and Cube Roots<br>4-7 The Real Number System | <b>Vocabulary</b><br>Exponent, power, base  |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 4 Test  | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math                                     |

**Unit 2 Proportionality and Linear Relationships****Days of Instruction: 13 Days**

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| <b>Standards and Objectives</b><br><a href="#">PA.A.2.1</a> , <a href="#">PA.A.2.2</a> , <a href="#">PA.A.2.5</a> , <a href="#">PA.A.3.1</a>   | <b>Essential Questions for Students</b><br>How can you identify and represent proportional relationships? |
| <b>Chapter 5 Ratio, Proportion, and Similar Figures</b><br>5-1 Ratios<br>5-2 Unit Rates<br>5-3 Complex Fractions and Unit Rates<br>5-4 Converting Rates<br>5-5 Proportional and Nonproportional Relationships<br>5-6 Graphing Proportional Relationships<br>5-7 Solving Proportions<br>5-8 Scale Drawings and Models<br>5-9 Similar Figures<br>5-10 Indirect Measurement | <b>Vocabulary</b><br>ratio  |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 5 Test   | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math   |

**Unit 2 Proportionality and Linear Relationships****Days of Instruction: 10 Days**

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| <b>Standards and Objectives</b><br>No State Standards in this chapter.   | <b>Essential Questions for Students</b><br>How can you use proportional relationships to solve real-world percent problems? |
| <b>Chapter 6 Percents</b><br>6-1 Using the Percent Proportion<br>6-2 Find Percent of a Number Mentally<br>6-3 Using the Percent Equation<br>6-4 Percent of Change<br>6-5 Discount and Markup<br>6-6 Simple and Compound Interest | <b>Vocabulary</b><br>Percent proportion   |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 6 Test   | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math   |

**Unit 2 Proportionality and Linear Relationships****Days of Instruction: 10 Days**

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| <b>Standards and Objectives</b><br><a href="#">P.A.3.2</a>  | <b>Essential Questions for Students</b><br>Why are algebraic rules useful? |
| <b>Chapter 7 Algebraic Expressions</b><br>7-1 The Distributive Property<br>7-2 Simplifying Algebraic Expressions<br>7-3 Adding Linear Expressions<br>7-4 Subtracting Linear Expressions<br>7-5 Factoring Linear Expressions | <b>Vocabulary</b><br>Equivalent, expressions, Distributive Property        |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 7 Test  | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math                |

**Unit 2 Proportionality and Linear Relationships****Days of Instruction: 12 Days**

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| <b>Standards and Objectives</b><br><a href="#">PA.A.4.1</a> , <a href="#">PA.A.4.2</a> , <a href="#">PA.A.4.3</a>   | <b>Essential Questions for Students</b><br>How are equations and inequalities used to describe and solve multi-step problems? |
| <b>Chapter 8 Equations and Inequalities</b><br>8-1 Solving Equations with Rational Coefficients<br>8-2 Solving Two-Step Equations<br>8-3 Writing Equations<br>8-4 More Two-Step Equations<br>8-5 Solving Equations with Variables on Each Side<br>8-6 Inequalities<br>8-7 Solving Inequalities<br>8-8 Solving Multi-Step Equations and Inequalities | <b>Vocabulary</b><br>Solution, inverse operations, equivalent equations   |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 8 Test  | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math   |

**Unit 2 Proportionality and Linear Relationships****Days of Instruction: 12 Days**

|   |   |
|---|---|
| <b>Standards and Objectives</b><br><a href="#">PA.A.1.1</a> , <a href="#">PA.A.1.2</a> , <a href="#">PA.A.1.3</a> , <a href="#">PA.A.2.1</a> , <a href="#">PA.A.2.2</a> , <a href="#">PA.A.2.3</a> , <a href="#">PA.A.2.4</a> ,<br><a href="#">PA.A.2.5</a> , <a href="#">PA.A.4.1</a> , <a href="#">PA.D.1.3</a> | <b>Essential Questions for Students</b><br>How are linear functions used to model proportional relationships?                 |
| <b>Chapter 9 Linear Functions</b><br>9-1 Functions<br>9-2 Representing Linear Functions<br>9-3 Constant Rate of Change and Slope<br>9-4 Direct Variation<br>9-5 Slope-Intercept Form<br>9-6 Solve Systems of Equations by Graphing<br>9-7 Solve Systems of Equations Algebraically                                | <b>Vocabulary</b><br>Function, independent variable, dependent variable, vertical line test, function rule, function notation |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 9 Test  | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math   |

**Unit 3 Introduction to Sampling and Inference****Days of Instruction: 11 Days**

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| <b>Standards and Objectives</b><br><a href="#">PA.D.1.1</a> , <a href="#">PA.D.1.2</a> , <a href="#">PA.D.2.1</a> , <a href="#">PA.D.2.3</a>   | <b>Essential Questions for Students</b><br>How are statistics used to draw inferences about and compare populations? |
| <b>Chapter 10 Statistics and Probability</b><br>10-1 Measures of Center<br>10-2 Measures of Variability<br>10-3 Mean Absolute Deviation<br>10-4 Compare Populations<br>10-5 Using Sampling to Predict<br>10-6 Probability of Simple Events<br>10-7 Theoretical and Experimental Probability<br>10-8 Probability of Compound Events | <b>Vocabulary</b><br>Statistics, measures of center  |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 10 Test  | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math  |

**Unit 4 Rational Numbers and Exponents****Days of Instruction: 14 Days**

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| <b>Standards and Objectives</b><br><a href="#">PA.GM.1.1</a> , <a href="#">PA.GM.1.2</a>   | <b>Essential Questions for Students</b><br>How can you determine congruence and similarity?   |
| <b>Chapter 11 Congruence, Similarity, and Transformations</b><br>11-1 Angle and Line Relationships<br>11-2 Triangles<br>11-3 Polygons<br>11-4 Translations and Reflections on the Coordinate Plane<br>11-5 Rotations on the Coordinate Plane<br>11-6 Congruence and Transformations<br>11-7 Dilations on the Coordinate Plane<br>11-8 Similarity and Transformations | <b>Vocabulary</b><br>Vertical angles, adjacent angles, complementary angles, supplementary angles, perpendicular lines, parallel lines, transversal, alternate interior angles, alternate exterior angles, corresponding angles, ( $\parallel$ ) is read as parallel to , ( $\perp$ ) is read as perpendicular to, $m\angle ABC$ is read measure of angle ABC |
| <b>Assessments</b><br>Mid Chapter Quiz<br>Chapter 11 Test  | <b>Resources</b><br>TI-30XS calculator, desmos, and XL Math   |

**Unit 4 Rational Numbers and Exponents****Days of Instruction: 12 Days****Standards and Objectives**[PA.A.3.1](#), [PA.GM.2.1](#), [PA.GM.2.2](#), [PA.GM.2.3](#), [PA.GM.2.4](#)**Essential Questions for Students**

How are two-dimensional figures used to solve problems involving three-dimensional figures?

**Chapter 12 Volume and Surface Area**

12-1 Circles and Circumference

12-2 Area of Circles

12-3 Area of Composite Figures

12-4 Three-Dimensional Figures

12-5 Volume of Prisms

12-6 Volume of Cylinders

12-7 Volume of Pyramids, Cones, and Spheres

12-8 Surface Area of Prisms

12-9 Surface Area of Cylinders

12-10 Surface Area of Pyramids and Cones

**Vocabulary**Circle, center, diameter, radius circumference, ( $\pi$ ) pi**Assessments**

Mid Chapter Quiz

Chapter 12 Test

**Resources**

TI-30XS calculator, desmos, and XL Math