Illustrative Mathematics: Algebra II Pacing Guide

Total of 126 days of instruction including the optional lessons

Unit 1 – Sequences & Functions (11 days)

Date		Lesson	Standards
___/___/___	Pre-Unit Assessment (Complete on the 1st day of school)		
___/___/___	A Towering Sequence	L1: A Towering Sequence	HSF-BF.A.1.a, HSF-BF.A.2
___/___/___	Sequences	L2: Introducing Geometric Sequences	HSF-BF.A.2, HSF-LE.A.2
___/___/___		L3: Different Types of Sequences	HSF-BF.A.2, HSF-IF.A.3, HSF-IF.C, HSF-LE.A.2
___/___/___		L4: Using Technology to Work with Sequences*Optional Lesson*	HSF-IF.C
___/___/___		L5: Sequences are Functions	HSF-BF.A.2, HSF-IF.A.3, HSF-LE.A.2
___/___/___		L6: Representing Sequences*Optional Lesson*	HSF-BF.A.2, HSF-IF.C, HSF-LE.A.2
___/___/___	What's the Equation	L7: Representing More Sequences	HSF-BF.A.2, HSF-IF.A.3, HSF-LE.A.2
___/___/___		L8: The nth Term	HSF-BF.A.2, HSF-LE.A.2
___/___/___		L9: What's the Equation?	HSF-BF.A.2, HSF-IF.A.3, HSF-IF.B.5, HSF-LE.A.2
___/___/___		L10: Situations & Sequence Types	HSF-BF.A.2, HSF-LE.A.2
___/___/___		L11: Adding Up	HSA-SSE.B.4, HSF-BF.A.1, HSF-BF.A.1.a, HSF-BF.A.2, HSF-LE.A.1, HSF-LE.A.2, HSN-Q.A.2
___/___/___	End-Unit Assessment		

Illustrative Mathematics: Algebra II Pacing Guide

Unit 2 -- Polynomials & Rational Functions (29 days)

Date		Lesson	Standards
___/___/___	Pre-Unit Assessment (Complete this after the Unit 1 End of Unit Assessment)		
___/___/___	What Is a Polynomial?	L1: Let's Make a Box	HSA-CED.A.2, HSA-SSE.A.1.a, HSF-IF.B.4, HSF-IF.B.5
___/___/___		L2: Funding the Future	HSA-APR.A.1, HSA-CED.A.2, HSA-REI.D.11, HSA-SSE.A.1, HSF-IF.A.2
___/___/___		L3: Introducing Polynomials	HSA-SSE.A, HSF-BF.B.3, HSF-IF.B.4, HSF-IF.C.7, HSF-IF.C.7.c
___/___/___		L4: Combining Polynomials	HSA-APR.A.1
___/___/___	Working with Polynomials	L5: Connecting Factors & Zeros	HSA-APR.B, HSA-APR.B.3
___/___/___		L6: Different Forms	HSA-APR.A, HSA-APR.A.1, HSA-APR.B, HSA-APR.B.3, HSA-SSE.B.3, HSF-BF.B.3
___/___/___		L7: Using Factors & Zeros	HSA-APR.B, HSA-APR.B.3, HSA-SSE.A.1.a, HSF-IF.C.7.c
___/___/___		L8: End Behavior (Part 1)	HSA-APR.B.3, HSA-SSE.A, HSF-IF.C, HSF-IF.C.7.c
___/___/___		L9: End Behavior (Part 2)	HSA-SSE.A, HSF-BF.B.3, HSF-IF.C
___/___/___		L10: Multiplicity	HSA-APR.B.3, HSF-IF.C.7.c
___/___/___		L11: Finding Intersections	HSA-APR.B, HSA-REI.C.7, HSA-REI.D.11
___/___/___		L12: Polynomial Division (Part 1)	HSA-APR.A, HSA-APR.B.2, HSA-APR.B.3
___/___/___		L13: Polynomial Division (Part 2)	HSA-APR.A, HSA-APR.B.2
___/___/___		L14: What Do You Know About Polynomials?	HSA-APR.A, HSA-APR.B, HSA-APR.B.2, HSA-APR.B.
___/___/___		L15: The Remainder Theorem	HSA-APR.B.2
___/___/___	Mid-Unit Assessment		
___/___/___	Rational Functions	L16: Minimizing Surface Area	HSA-CED.A, HSA-CED.A.2, HSA-CED.A.4
___/___/___		L17: Graphs of Rational Functions (Part 1)	HSA-CED.A.2, HSF-BF.B.3, HSF-IF.B.4, HSF-IF.C, HSF-IF.C.7

Illustrative Mathematics: Algebra II Pacing Guide

___/___/___			
___/___/___		L18: Graphs of Rational Functions (Part 2)	HSA-APR.D.6, HSA-SSE.A.1, HSF-IF.C
___/___/___		L19: End Behavior of Rational Functions	HSA-APR.D.6, HSA-SSE.A.1, HSF-IF.C.7
___/___/___	Rational Equations	L20: Rational Equations (Part 1)	HSA-CED.A.1, HSA-CED.A.2, HSA-REI.A, HSA-REI.A.1
___/___/___		L21: Rational Equations (Part 2)	HSA-CED.A.1, HSA-REI.A, HSA-REI.A.1, HSA-REI.D.11
___/___/___		L22: Solving Rational Equations	HSA-REI.A.2
___/___/___	Polynomial Identities	L23: Polynomial Identities (Part 1)	HSA-APR.C.4, HSA-SSE.A.2, HSA-SSE.B.4
___/___/___		L24: Polynomial Identities (Part 2)	HSA-APR.C.4, HSA-APR.D
___/___/___		L25: Summing Up	HSA-APR.C, HSA-SSE.A.2, HSA-SSE.B.4
___/___/___		L26: Using the Sum	HSA-SSE.A.1, HSA-SSE.B.4
___/___/___	End-Unit Assessment		

Illustrative Mathematics: Algebra II Pacing Guide

Unit 3 – Complex Numbers & Rational Exponents (14 days)

Date		Lesson	Standards
___/___/___	Pre-Unit Assessment (Complete this after the Unit 2 End of Unit Assessment)		
___/___/___	Exponent Properties	L1: Properties of Exponents*Optional Lesson*	HSN-RN.A.1, HSN-RN.A.2
___/___/___		L2: Square Roots & Cube Roots*Optional Lesson*	HSN-RN.A.1, HSN-RN.A.2
___/___/___		L3: Exponents That Are Unit Fractions	HSN-RN.A.1, HSN-RN.A.2
___/___/___		L4: Positive Rational Exponents	HSN-RN.A.1, HSN-RN.A.2
___/___/___		L5: Negative Rational Exponents	HSN-RN.A.1, HSN-RN.A.2
___/___/___	Solving Equations with Square & Cube Roots	L6: Squares & Square Roots	HSA-REI.A.2
___/___/___		L7: Inequivalent Equations	HSA-REI.A.1, HSA-REI.A.2, HSA-REI.B.4.b
___/___/___		L8: Cubes & Cube Roots	HSA-REI.A.2, HSA-REI.D.11
___/___/___		L9: Solving Radical Equations*Optional Lesson*	HSA-REI.A.2
___/___/___	A New Kind of Number	L10: A New Kind of Number	HSN-CN.A.1, HSN-CN.A.2
___/___/___		L11: Introducing the Number i	HSN-CN.A.1, HSN-CN.A.2, HSN-CN.C.7
___/___/___		L12: Arithmetic with Complex Numbers	HSN-CN.A.1, HSN-CN.A.2
___/___/___		L13: Multiplying Complex Numbers*	HSN-CN.A.1, HSN-CN.A.2
___/___/___		L14: More Arithmetic with Complex Numbers*Optional Lesson*	HSN-CN.A.1, HSN-CN.A.2
___/___/___		L15: Working Backwards	HSN-CN.A.2, HSN-CN.C.7
___/___/___	Solving Quadratics with Complex Numbers	L16: Solving Quadratics*Optional Lesson*	HSA-REI.B.4.a, HSA-REI.B.4.b
___/___/___		L17: Completing the Square & Complex Solutions	HSA-REI.B.4.b, HSA-REI.D.11, HSN-CN.C.7
___/___/___		L18: The Quadratic Formula & Complex Solutions	HSA-REI.B.4, HSN-CN.C.7

___/___/___		L19: Real & Non-Real Solutions*Optional Lesson*	HSA-REI.B.4.b, HSN-CN.C.7
___/___/___	End-Unit Assessment		

Illustrative Mathematics: Algebra II Pacing Guide

Unit 4 – Exponential Functions & Equations (19 days)

Date		Lesson	Standards
___/___/___	Pre-Unit Assessment (Complete this after the Unit 3 End of Unit Assessment)		
___/___/___	Growing & Shrinking	L1: Growing & Shrinking	HSF-LE.A.1.b, HSF-LE.A.1.c, HSF-LE.A.2
___/___/___		L2: Representations of Growth & Decay*Optional Lesson*	HSA-SSE.A.1, HSF-LE.A.2, HSF-LE.B.5
___/___/___	Understanding Non-Integer Inputs	L3: Understanding Rational Inputs	HSF-LE.A.2, HSN-RN.A.1
___/___/___		L4: Representing Functions at Rational Inputs	HSA-SSE.A.1, HSA-SSE.B.3.c, HSF-LE.A.2
___/___/___		L5: Changes over Rational Intervals	HSA-SSE.A, HSF-LE.A.1.a, HSF-LE.A.1.b
___/___/___		L6: Writing Equations for Exponential Functions	HSA-SSE.A.1, HSF-IF.C.8.b, HSF-LE.A.2, HSN-RN.A.1
___/___/___		L7: Interpreting & Using Exponential Functions	HSA-SSE.A.1, HSA-SSE.B.3, HSF-LE.B.5, HSN-RN.A.1
___/___/___	Mid-Unit Assessment		
___/___/___	Missing Exponents	L8: Unknown Exponents	HSF-BF.A.1.a, HSF-LE.A.4
___/___/___		L9: What is a Logarithm?	HSF-LE.A.4
___/___/___		L10: Interpreting & Writing Logarithmic Equations	HSA-SSE.B.3, HSF-LE.A.4
___/___/___		L11: Evaluating Logarithmic Expressions	HSF-LE.A.4
___/___/___	The Constant e	L12: The Number e	HSF-IF.A.2, HSF-LE.A.4, HSF-LE.B.5
___/___/___		L13: Exponential Functions with Base e	HSA-SSE.A.1.b, HSF-IF.C.7, HSF-LE.A, HSF-LE.A.4, HSF-LE.B.5
___/___/___		L14: Solving Exponential Equations	HSF-LE.A.4
___/___/___	Logarithmic Functions & Graphs	L15: Using Graphs & Logarithms to Solve Problems (Part 1)	HSA-REI.D.11, HSF-IF.C.7.e, HSF-LE.A.4, HSF-LE.B.5
___/___/___		L16: Using Graphs & Logarithms to Solve Problems (Part 3)	HSA-REI.D.11, HSF-BF.A.1, HSF-IF.B, HSF-LE.A.4, HSN-Q.A
___/___/___		L17: Logarithmic Functions	HSF-IF.C, HSF-IF.C.7.e, HSF-LE.A.4

___/___/___		L18: Applications of Logarithmic Functions*Optional Lesson*	HSF-IF.B.4, HSF-LE.A.4
___/___/___	End-Unit Assessment		

Unit 5 – Transformations of Functions(13 days)

Date	Lesson	Standards
___/___/___	Pre-Unit Assessment (Complete this after the Unit 4 End of Unit Assessment)	

Illustrative Mathematics: Algebra II Pacing Guide

Date	Unit	Lesson	Standards
___/___/___	Translations, Reflections, & Symmetry	L1: Matching up to Data	HSF-BF.B.3, HSS-ID.B.6.a
___/___/___		L2: Moving Functions	HSF-BF.B.3
___/___/___		L3: More Movement	HSF-BF.B.3, HSS-ID.B.6.a
___/___/___		L4: Reflecting Functions	HSF-BF.B.3
___/___/___		L5: Some Functions Have Symmetry	HSF-BF.B.3, HSF-IF.C
___/___/___		L6: Symmetry in Equations	HSF-BF.B.3, HSF-IF.C.8
___/___/___		L7: Expressing Transformations of Functions Algebraically	HSF-BF.B.3, HSS-ID.B.6.a
___/___/___	Scaling Outputs & Inputs	L8: Scaling the Outputs	HSF-BF.B.3, HSS-ID.B.6.a
___/___/___		L9: Scaling the Inputs	HSF-BF.B.3, HSN-Q.A.2, HSN-Q.A.3, HSS-ID.B.6, HSS-ID.B.6.a
___/___/___	Putting It All Together	L10: Combining Functions	HSF-BF.A.1.b
___/___/___		L11: Making a Model for Data	HSF-BF.A.1.b, HSF-BF.B.3, HSF-IF.B.4, HSF-LE.B, HSS-ID.B.6.a
___/___/___	End-Unit Assessment		

Unit 6 – Trigonometric Functions (22 days)

Date	Lesson	Standards
___/___/___	Pre-Unit Assessment (Complete this after the Unit 5 End of Unit Assessment)	

Illustrative Mathematics: Algebra II Pacing Guide

Date	Unit	Lesson	Standards
___/___/___	The Unit Circle	L1: Moving in Circles	HSF-TF.A, HSF-TF.C
___/___/___		L2: Revisiting Right Triangles*	HSF-TF.A.2, HSF-TF.C.8
___/___/___		L3: The Unit Circle (Part 1)	HSF-TF.A, HSF-TF.A.1, HSF-TF.A.2, HSF-TF.C.8
___/___/___		L4: The Unit Circle (Part 2)	HSF-TF.A, HSF-TF.A.1, HSF-TF.A.2
___/___/___		L5: The Pythagorean Identity (Part 1)	HSF-TF.A, HSF-TF.A.2, HSF-TF.C.8
___/___/___		L6: The Pythagorean Identity (Part 2)	HSF-TF.A.2, HSF-TF.C.8
___/___/___		L7: Finding Unknown Coordinates on a Circle	HSF-TF.B, HSF-TF.B.5
___/___/___	Periodic Functions	L8: Rising & Falling	HSF-IF.B.4, HSF-IF.C, HSF-TF.B
___/___/___		L9: Introduction to Trigonometric Functions	HSF-IF.C.7, HSF-TF.A
___/___/___		L10: Beyond 2π	HSF-TF.A.2, HSF-TF.B
___/___/___		L11: Extending the Domain of Trigonometric Functions	HSF-TF.A.2
___/___/___		L12: Tangent	HSF-IF.C.7, HSF-TF.A.2
___/___/___	**Mid-Unit Assessment**		
___/___/___	Trigonometry Transformations	L13: Amplitude & Midline	HSF-IF.C.7.e, HSF-TF.B.5
___/___/___		L14: Transforming Trigonometric Functions	HSF-IF.C.7.e, HSF-TF.B
___/___/___		L15: Features of Trigonometric Graphs (Part 1)	HSF-BF.B.3, HSF-IF.B.4, HSF-IF.C.7.e
___/___/___		L16: Features of Trigonometric Graphs (Part 2)	HSF-IF.C.7.e, HSF-TF.B, HSF-TF.B.5
___/___/___		L17: Comparing Transformations	HSF-BF.B.3, HSF-IF.C.7.e
___/___/___		L18: Modeling Circular Motion	HSF-BF.B.3, HSF-IF.B.4, HSF-IF.C.7.e, HSF-TF.A.1, HSF-TF.B.5, HSN-Q.A.1
___/___/___	Putting It All Together	L19: Beyond Circles	HSF-IF.C.7.e, HSF-TF.B, HSF-TF.B.5
___/___/___	**End-Unit Assessment**		

Illustrative Mathematics: Algebra II Pacing Guide

Unit 7 – Statistical Inferences (18 days)

Date		Lesson	Standards
___/___/___	Pre-Unit Assessment (Complete this after the Unit 6 End of Unit Assessment)		
___/___/___	Study Types	L1: Being Skeptical	HSS-IC.A.1, HSS-IC.B.3, HSS-IC.B.6
___/___/___		L2: Study Types	HSS-IC.A.1, HSS-IC.B.3, HSS-IC.B.6
___/___/___		L3: Randomness in Groups	HSS-IC.A.1, HSS-IC.B.3, HSS-IC.B.5, HSS-ID.A.2, HSS-ID.A.4
___/___/___	Distributions	L4: Describing Distributions *Optional Lesson*	HSS-ID.A.1, HSS-ID.A.2
___/___/___		L5: Normal Distributions	HSS-ID.A.1, HSS-ID.A.2, HSS-ID.A.4
___/___/___		L6: Areas in Histograms	HSG-GPE.B.7, HSS-ID.A.1, HSS-ID.A.4
___/___/___		L7: Areas under a Normal Curve	HSS-ID.A.4
___/___/___	Not All Samples Are the Same	L8: Not Always Ideal	HSS-IC.A.2
___/___/___		L9: Variability in Samples	HSS-IC.B.4
___/___/___	Mid-Unit Assessment		
___/___/___	Not All Samples Are the Same	L10: Estimating Proportions from Samples	HSS-IC.B.4, HSS-IC.B.6
___/___/___		L11: Reducing Margin of Error	HSS-IC.B.4
___/___/___		L12: Estimating a Population Mean	HSS-IC.B.4
___/___/___	Analyzing Experimental Data	L13: Experimenting	HSS-IC.B.3, HSS-IC.B.5, HSS-IC.B.6
___/___/___		L14: Using Normal Distributions for Experiment Analysis	HSS-IC.B.5, HSS-ID.A.4
___/___/___		L15: Questioning Experimenting	HSS-IC.B.5, HSS-ID.A.4
___/___/___		L16: Heart Rates	HSS-IC.B.5
___/___/___	End-Unit Assessment		

Modeling Prompts

MODELING PROMPT 1

Modeling Prompt 0

Use after Unit 1, Lesson 1

MODELING PROMPT 2

Viral Marketing

Use after Unit 1, Lesson 11
- HSF-BF.A.1
- HSF-LE.A.1
- HSF-LE.A.2
- HSN-Q.A.2

MODELING PROMPT 3

Swing Time

Use after Unit 5, Lesson 9
- HSN-Q.A.2
- HSN-Q.A.3
- HSS-ID.B.6
- HSS-ID.B.6.a