

## Secondary Mathematics II and II Honors Walch Alignment

Unit 1: Extending the Number System				
Lesson	Sub-lesson number	Title	Standard(s)	Notes
<b>Lesson 1</b>	<b>Operating with Polynomials</b>			
	1.1.1	Adding and Subtracting Polynomials	A-APR.1	
	1.1.2	Multiplying Polynomials	A-APR.1	
<b>Lesson 2</b>	<b>Working with the Number System</b>			
	1.2.1	Defining, Rewriting, and Evaluating Rational Exponents	N-RN.1 N-RN.2	
	1.2.2	Rational and Irrational Numbers and Their Properties	N-RN.2 N-RN.3	
	1.2.3 HONORS	Writing Radical Expressions in Equivalent Forms	N.RN.2	Now in regular Sec II
<b>Lesson 3</b>	<b>Operating with Complex Numbers</b>			
	1.3.1	Defining Complex Numbers, $i$ , and $i^2$	N-CN.1	
	1.3.2	Adding and Subtracting Complex Numbers	N-CN.2	
	1.3.3	Multiplying Complex Numbers	N-CN.2	
	1.3.4 HONORS	HONORS: Finding the Conjugate	N-CN.3 (+)	
	1.3.5 HONORS	HONORS: Representing Complex Numbers and Their Operations on the Complex Plane	N-CN.4 N-CN.5	

Unit 2: Quadratic Functions and Modeling

Lesson	Sub-lesson number	Title	Standard(s)	Notes
<b>Analyzing Quadratic Functions</b>				
<b>Lesson 1</b>	2.1.1	Graphing Quadratic Functions	F.IF.7a★	
	2.1.2	Interpreting Various Forms of Quadratic Functions	F.IF.7a★	
<b>Interpreting Quadratic Functions</b>				
<b>Lesson 2</b>	2.2.1	Interpreting Key Features of Quadratic Functions	F.IF.4★	
	2.2.2	Identifying the Domain of a Quadratic Function	F.IF.5★	
	2.2.3	Identifying the Average Rate of Change	F.IF.6★	
<b>Building Functions</b>				
<b>Lesson 3</b>	2.3.1	Building Functions from Context	F.BF.1a★	
	2.3.2	Operating on Functions	F.BF.1b★	
<b>Analyzing Functions</b>				
<b>Lesson 4</b>	2.4.1	Analyzing Exponential Functions	F.IF.8b	
	2.4.2	Comparing Properties of Functions Given in Different Forms	F.IF.9 F.LE.3★	
<b>Transforming Functions</b>				
<b>Lesson 5</b>	2.5.1	Replacing $f(x)$ with $f(x) + k$ and $f(x + k)$	F.BF.3	
	2.5.2	Replacing $f(x)$ with $k \cdot f(x)$ and $f(k \cdot x)$	F.BF.3	
<b>Finding Inverse Functions</b>				
Lesson 6	2.6.1	Finding Inverse Functions	F.BF.4a	Moved to Sec III
<b>Graphing Other Functions</b>				
<b>Lesson 7</b>	2.7.1	Absolute Value and Step Functions	F.IF.7b★	Step functions moved to Sec III
	2.7.2	Piecewise Functions	F.IF.7b★	

Unit 3A: Expressions and Equations

Lesson	Sub-lesson number	Title	Standard(s)	Notes
<b>Interpreting Structure in Expressions</b>				
<b>Lesson 1</b>	3A.1.1	Identifying Terms, Factors, and Coefficients	A.SSE.1a <sup>★</sup>	
	3A.1.2	Interpreting Complicated Expressions	A.SSE.1b <sup>★</sup>	
<b>Creating and Solving Quadratic Equations in One Variable</b>				
<b>Lesson 2</b>	3A.2.1	Taking the Square Root of Both Sides	A.CED.1 <sup>★</sup> A.REI.4b	
	3A.2.2	Factoring Expressions by the Greatest Common Factor	A.SSE.2	
	3A.2.3	Factoring Expressions with $A = 1$	A.SSE.2	
	3A.2.4	Factoring Expressions with $A > 1$	A.SSE.2	
	3A.2.5	Solving Quadratic Equations by Factoring	A.SSE.2 A.CED.1 <sup>★</sup> A.REI.4b	
	3A.2.6	Completing the Square	A.SSE.2 A.CED.1 <sup>★</sup> A.REI.4a A.REI.4b F.IF.8a	
	3A.2.7	Applying the Quadratic Formula	A.CED.1 <sup>★</sup> A.REI.4a A.REI.4b F.IF.8a	
	3A.2.8	Solving Quadratic Inequalities	A.SSE.2 A.CED.1 <sup>★</sup> A.REI.4b F.IF.8a	

Unit 3B: Creating and Graphing Equations

Lesson	Sub-lesson number	Title	Standard(s)	Notes
<b>Creating Quadratic Equations in Two or More Variables</b>				
<b>Lesson 1</b>	3B.1.1	Creating and Graphing Equations Using Standard Form	A.CED.2★ A.SSE.3a★	
	3B.1.2	Creating and Graphing Equations Using the x-intercepts	A.CED.2★ A.SSE.3a★	
	3B.1.3	Creating and Graphing Equations Using Vertex Form	A.CED.2★ A.SSE.3b★	
	3B.1.4	Rearranging Formulas	A.CED.4★	
<b>Fundamental Theorem of Algebra</b>				
<b>Lesson 2</b>	3B.2.1 HONORS	HONORS: Extending Polynomial Identities to Include Complex Numbers	N.CN.8	Now in regular Sec II
	3B.2.2	Solving Quadratic Equations with Complex Solutions	N.CN.7	
	3B.2.3 HONORS	HONORS: Applying the Fundamental Theorem of Algebra	N.CN.7 N.CN.9	Now in regular Sec II
<b>Writing Exponential Expressions in Equivalent Forms</b>				
Lesson 3	3B.3.1	Writing Exponential Expressions in Equivalent Forms	A.SSE.3c★	
<b>Solving Systems of Equations</b>				
<b>Lesson 4</b>	3B.4.1	Solving Systems Graphically	A.REI.7	
	3B.4.2	Solving Systems Algebraically	A.REI.7	
<b>HONORS: Using Matrices to Solve Systems of Equations</b>				
<b>Lesson 5</b>	3B.5.1 HONORS	HONORS: Representing a System of Linear Equations as a Single Matrix	A.REI.8	
	3B.5.2 HONORS	HONORS: Finding the Inverse of a Matrix and Using It to Solve a System of Equations	A.REI.9	

Unit 4: Applications of Probability

Lesson	Sub-lesson number	Title	Standard(s)	Notes
<b>Events</b>				
<b>Lesson 1</b>	4.1.1	Describing Events	S.CP.1★	
	4.1.2	HONORS: The Addition Rule	S.CP.7★	HONORS
	4.1.3	HONORS: Understanding Independent Events	S.CP.2★	HONORS
<b>Conditional Probability</b>				
<b>Lesson 2</b>	4.2.1	HONORS: Introducing Conditional Probability	S.CP.3★ S.ID.5	HONORS
	4.2.2	Using Two-Way Frequency Tables	S.CP.4★ S.CP.5★ S.CP.6★	
	Secondary I 4.2.1	Summarizing Data using Two-Way Frequency Tables	S.ID.5	Pull from Secondary I
	4.2.3 HONORS	HONORS: The Multiplication Rule	S.CP.8★	
<b>HONORS: Combinatorics</b>				
<b>Lesson 3</b>	4.3.1 HONORS	HONORS: Combinations and Permutations	S.CP.9★	Moved to Sec III H
	4.3.2 HONORS	HONORS: Probability with Combinatorics	S.CP.9★	Moved to Sec III H
<b>HONORS: Making and Analyzing Decisions</b>				
<b>Lesson 4</b>	4.4.1 HONORS	HONORS: Making Decisions	S.MD.6★	Removed from the Core
	4.4.2 HONORS	HONORS: Analyzing Decisions	S.MD.7★	Removed from the Core

Unit 5: Similarity, Right Triangle Trigonometry, and Proof

Lesson	Sub-lesson number	Title	Standard(s)	Notes
<b>Lesson 1</b>	<b>Line Segments</b>			
	5.1.1	Midpoints and Other Points on Line Segments	G.GPE.6	
<b>Lesson 2</b>	<b>Investigating Properties of Dilations</b>			
	5.2.1	Investigating Properties of Parallelism and the Center	G.SRT.1a	
	5.2.2	Investigating Scale Factors	G.SRT.1b	
<b>Lesson 3</b>	<b>Defining and Applying Similarity</b>			
	5.3.1	Defining Similarity	G.SRT.2	
	5.3.2	Applying Similarity Using the Angle-Angle (AA) Criterion	G.SRT.3	
<b>Lesson 4</b>	<b>Proving Similarity</b>			
	5.4.1	Proving Triangle Similarity Using Side-Angle-Side (SAS) and Side-Side-Side (SSS) Similarity	G.SRT.4	
	5.4.2	Working with Ratio Segments	G.SRT.4	
	5.4.3	Proving the Pythagorean Theorem Using Similarity	G.SRT.4	
	5.4.4	Solving Problems Using Similarity and Congruence	G.SRT.5	
<b>Lesson 5</b>	<b>Proving Theorems About Lines and Angles</b>			
	5.5.1	Proving the Vertical Angles Theorem	G.CO.9	
	5.5.2	Proving Theorems About Angles in Parallel Lines Cut by a Transversal	G.CO.9	
<b>Lesson 6</b>	<b>Proving Theorems About Triangles</b>			
	5.6.1	Proving the Interior Angle Sum Theorem	G.CO.10	
	5.6.2	Proving Theorems About Isosceles Triangles	G.CO.10	
	5.6.3	Proving the Midsegment of a Triangle	G.CO.10	
	5.6.4	Proving Centers of Triangles	G.CO.10	

<b>Proving Theorems About Parallelograms</b>				
<b>Lesson 7</b>	5.7.1	Proving Properties of Parallelograms	G.CO.11	
	5.7.2	Proving Properties of Special Quadrilaterals	G.CO.11	
<b>Exploring Trigonometric Ratios</b>				
<b>Lesson 8</b>	5.8.1	Defining Trigonometric Ratios	G.SRT.6	
	5.8.2- HONORS	HONORS: Writing Trigonometric Expressions in Equivalent Forms	Write trigonometric expressions in equivalent forms to solve problems.	Moved to Sec III
	5.8.3	Exploring Sine and Cosine As Complements	G.SRT.7	
<b>Applying Trigonometric Ratios</b>				
<b>Lesson 9</b>	5.9.1	Calculating Sine, Cosine, and Tangent	G.SRT.8★	
	5.9.2	Calculating Cosecant, Secant, and Cotangent	G.SRT.8★	
	5.9.3	Problem Solving with the Pythagorean Theorem and Trigonometry	G.SRT.8★	
	5.9.4	Proving the Pythagorean Identity	F.TF.8	
	5.9.5 HONORS	HONORS: Proving Trigonometric Identities	F.TF.8	Now in regular Sec II
	5.9.6 HONORS	HONORS: Proving the Addition and Subtraction Formulas	F.TF.9-	Moved to Sec III H

Unit 6: Circles With and Without Coordinates

Lesson	Sub-lesson number	Title	Standard(s)	Notes
<b>Introducing Circles</b>				
<b>Lesson 1</b>	6.1.1	Similar Circles and Central and Inscribed Angles	G.C.1 G.C.2	
	6.1.2	Chord Central Angles Conjecture	G.C.2	
	6.1.3	Properties of Tangents of a Circle	G.C.2	
<b>Inscribed Polygons and Circumscribed Triangles</b>				
<b>Lesson 2</b>	6.2.1	Constructing Inscribed Circles	G.C.3	
	6.2.2	Constructing Circumscribed Circles	G.C.3	
	6.2.3	Proving Properties of Inscribed Quadrilaterals	G.C.3	
<b>Constructing Tangent Lines</b>				
<b>Lesson 3</b>	6.3.1	Constructing Tangent Lines	G.C.4	
<b>Finding Arc Lengths and Areas of Sectors</b>				
<b>Lesson 4</b>	6.4.1	Defining Radians	G.C.5	
	6.4.2	Deriving the Formula for the Area of a Sector	G.C.5	
<b>Explaining and Applying Area and Volume Formulas</b>				
<b>Lesson 5</b>	6.5.1	Circumference and Area of a Circle	G.GMD.1	
	6.5.2	Volumes of Cylinders, Pyramids, Cones, and Spheres	G.GMD.1 G.GMD.3★	
	6.5.3 HONORS	HONORS: Cavalieri's Principle	<del>G.GMD.2</del> G.GMD.3★	Moved to Sec III H
<b>Deriving Equations</b>				
<b>Lesson 6</b>	6.6.1	Deriving the Equation of a Circle	G.GPE.1	
	6.6.2	HONORS: Deriving the Equation of a Parabola	G.GPE.2	HONORS
<b>Using Coordinates to Prove Geometric Theorems About Circles and Parabolas</b>				
<b>Lesson 7</b>	6.7.1	Using Coordinates to Prove Geometric Theorems About Circles and Parabolas	G.GPE.4	

Standards not covered:

Honors F.IF.10 - Sum of infinite series

Honors F.IF.11 - Represent series algebraically, graphically, and numerically

HONORS G.GPE.3 - derive the equations of ellipses and hyperbolas

S.CP.5- understand and explain conditional probability (no calculations)

S.CP.6 - Find conditional probability