ALGEBRA 2 INTEGRATED SYLLABUS

Marking Period 1

Chapter 4: Transformations (Test: 4.1 - 4.3, 4.5)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
4.1, 4.2	Translations & Reflections	G-CO.A.2, G-CO.A.3, G-CO.A.4, G-CO.A.5, G-CO.B.6, G-MG.A.3 (Formulas Given)	Big Ideas Text pg. 178 #11-25 odd Big Ideas Text pg. 186 #2-6, 7-19 odd
4.3, 4.5	Rotations & Dilations	G-CO.A.2, G-CO.A-3, G-CO.A.4, G-CO.A.5, G-CO.B.6, G-SRT.A.1a, G-SRT.A.1b, (Formulas Given)	Big Ideas Text pg.194 #7-15 odd, 28 Big Ideas Text pg. 212 #3, 5, 15-21 odd, 25, 29

Chapter 11: Measuring Length and Area (Test: 11.1- 11.8)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
11.1, 11.2	Circumference Areas of Circles	G-C.B.5, G-CO.A.1, G-GMD.A.1, G-MG.A.2,	Big Ideas Text p. 598 #1, 3-6, 11,
11.3, 11.4, 11.7, 11.8	Areas of Polygons Three-Dimensional Figures Surface Area and Volumes of Cones	G-GMD.A.1, G-GMD.A.3, G-GMD.B.4 (Formulas Given)	Big Ideas Text p. 614-616 #1-29 odd, 33-35, 39, 40, 44, 53-56 Big Ideas Text p. 621-622 #1-27 odd, 37-39, project Big Ideas Text p. 645-646 #1-21 odd, 25, 27-30, project
11.5, 11.6	Volumes of Prisms and Cylinders Volumes of Pyramids	G-GMD.A.1, G-GMD.A.2, G-GMD.A.3, G-MG.A.1, G-MG.A.2, G-MG.A.3 (Formulas Given)	Big Ideas Text p. 631-634 #1-33 odd, 44 , 51, 55-57, project Big Ideas Text p. 639-640 #1-19 odd, 23, 26-29, project

Chapter 9: Right Triangles and Trigonometry (Test: 9.1, 9.4-9.5)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
9.1	The Pythagorean Theorem	N-RN.A.3, G-SRT.B.4, G-SRT.C.8	Big Ideas Text pg. 236 #3-6, 7-25 odd, 38
9.4	The Tangent Ratio	G-SRT.C.6, G-SRT.C.8	Big Ideas Text pg. 256 #7-11, 13-16, 19, 22, 23
9.5	The Sine and Cosine Ratios	G-SRT.C.6, G-SRT.C.7, G-SRT.C.8	Big Ideas Text pg. 266 #2-7, 9, 14, 15
9.6	Solving Right Triangles	G-SRT.C.8, G-MG.A.1, G-MG.A.3	Big Ideas Text pg. 274 #3-7, 9, 11, 15, 16

Marking Period 2

Chapter 4 Part 1- Operations with Polynomials
(Test: Section 4.1 Classifying Polynomials, &4.2)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
4.1	Classifying Polynomials only	F-IF.B.4, F-IF.C.7c	Big Ideas Text pg. 162 #3-8
4.2	Adding, Subtracting, and Multiplying Polynomials	A-APR.A.1, A-APR.C.4, A-APR.C.5	Big Ideas Text pg.170-172 # 1-14, 16-32, 35–47, 50-52, 56, 66–69

Chapter 3 Part 1- Factoring and Quadratic Equations (Test: Factoring Supplemental & 3.1)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
Supplement	Factoring Quadratic Expressions	A-SSE.A.2, A-SSE.B.3a	Teacher created worksheet using Kuta software or other supplemental material.
3.1	Solving Quadratic Equations	N-CN.C.7, N-RN.A.3, A-SSE.A.2, A-REI.B.4b, F-IF.C.8a	Big Ideas Text pg.99-102 #1-10, 13-19, 23, 27-32, 47-54, 57, 59, 70, 71, 76–83

Chapter 2- Quadratic Functions (Test 2.1, 2.2 & 2.4)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
2.1	Transformations and Quadratic Functions	F-BF.B.3 F-IF.C.7c	Big Idea Text pg.52 – 54, #1–33, 35, 37, 39, 46, 50–52
2.2	Characteristics of Quadratic Functions	A-APR.B.3, F-IF.B.4, F-IF.C.7.c, F-IF.C.9	Big Ideas Text pg. 61-64, # 1, 3 - 10, 15-24, 33, 37, 41 – 44, 49 Supplemental Text: Prentice Hall Algebra 2 pg248: #1 – 30 & pg. 256: #27 – 30, 34
2.4	Modeling with Quadratic Functions	A-CED.A.2, F-IF.B.6	Big Ideas Text pg. 80, # 2, 4, 6, 17 Supplemental Text: Prentice Hall Algebra 2 pg 255: #13 – 19

Marking Period 3

Systems of Functions (Test: Supplemental 2x2, 1.4, & 3.5)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
Supplement	Solving 2x2 Linear Algebraically & Graphically	A-CED.A.3, A-REI.C.5, A-REI.C.6, A-REI.D.11	Teacher created worksheet using Kuta software or other supplemental material.
1.4	Solving Linear Systems Algebraically	A-CED.A.3, A-REI.C.5, A-REI.C.6, A-REI.D.11	Big Ideas Text pg. 34: 1, 3-6, 17 Supplemental Text Prentice Hall Algebra 2: pg. 157 #1-21
3.5	Solving Nonlinear Systems Graphically (given the graph)	A-CED.A.3, A-REI.C.7, A-REI.D.11	Big Ideas Text pg.136 # 3-14
Supplement	Solving Nonlinear Algebraically Using Factoring	A-CED.A.3, A-REI.C.7, A-REI.D.11	Teacher created worksheet using Kuta software or other supplemental material.

Chapter 3 Part 2-Simplifying Radicals and Solving Quadratic Equations
(Test: 3.3-3.4, Simplifying Radicals)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
Supplement	Simplify Radicals	N-RN.A.3	*Kuta Software; teacher created resources*
3.3	Completing the Square	N-CN.C.7, A-REI.B.4b, F-IF.C.8a	Big Ideas Text pg.116 # 3-8, 11-16, 25-28, 66, 69 #55-60 *do not use complete the square, use* $h = -b/(2a)$ *and* $k = f(h)$ Supplemental Text: Prentice Hall Algebra 2 pg. 285 #13-20 #28 & 31 *do not use complete the square, use* $h = -b/(2a)$ *and* $k = f(h)$
3.4	Using the Quadratic Formula	N-CN.C.7, N-RN.A.3, A-REI.B.4b	Big Ideas Text pg.127 # 15-18, 33, 34,69 Supplemental Text: Prentice Hall Algebra 2 pg. 293 #1-30

Chapter 4 Part 2- Graphing Polynomials (Test: 4.1 & 4.8)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
4.1	Graphing Polynomial Functions	F-IF.B.4, F-IF.C.7c	Big Ideas Text pg.162 #1, 3-14, 17-20, 25-31, 48 Supplemental Text: Prentice Hall Algebra 2 pg. 309 #1-12
4.8	Analyzing Graphs of Polynomials	A-APR.B.3, F-BF.B.3 F-IF.B.4, F-IF.C.7c,	Big Ideas Text pg.216 #3-10, 17-22(Use TI84 or Desmos), 23-30

Marking Period 4

Chapter 4 Part 3- Complex Numbers, Factoring and Solving Higher Degree Polynomials

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
3.2	Complex Numbers *include higher powers of i	N-CN.A.1, N-CN.A.2, N-CN.C.7, A-REI.B.4b, F-IF.C.8a	Big Ideas Text pg.108 # 1-12, 23-30, 37-44, 49-60, 68 Supplemental Text: Prentice Hall Algebra 2 pg. 278 #1-18, 29-46
4.3	Dividing Polynomials	A-APR.B.2, A-APR.D.6	Big Ideas Text pg.177 #11-22, 25-32 Supplemental Text: Prentice Hall Algebra 2 pg. 324 #13-22
4.5	Solving Polynomial Equations	A-APR.B.3	Big Ideas Text pg.194 #3-20, 25-38(must give 1 zero), 41, 42, 56a Supplemental Text: Prentice Hall Algebra 2 pg. 339 #1-5 (must give 1 zero), 7-10 (must give 1 zero), 13-18, 19, 21, 23
4.6	The Fundamental Theorem of Algebra	N-CN.C.8, N-CN.C.9, A-APR.B.3	Big Ideas Text pg.202 #3-16, 21, 22, 25 Supplemental Text: Prentice Hall Algebra 2 pg. 343 #9-16

Chapter 5: Rational Exponents and Radical Functions (Test: 5.3, 5.5 & 5.6)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
5.5	Performing Function Operations	F-BF.A.1b	Big Ideas Text pg. 273: #5, 6, 19, 20, 28-31 Supplemental Text: Prentice Hall Algebra 2 pg. 400: #1-44
Supplement	Composition of Functions	F-BF.A.1c	*Supplement Composition of functions using Kuta Software*
5.6	Inverse of a Function	A-CED.A.4, F-BF.B.4a	Big Ideas Text pg. 281: #5 – 8, 13-20, 22, 29, 30, 73-79 Supplemental Text: Prentice Hall Algebra 2 pg. 410: #1-34
5.3	Graphing Radical Functions	F-BF.B.3, F-IF.C.7b	Big Ideas Text pg. 256: #1-11, 19, 21, 22, 27, 64 Supplemental Text: Prentice Hall Algebra 2 pg. 417: #1-8, 12, 15, 18-21

Chapter 5: Rational Exponents and Radical Functions (Test: 5.1, 5.2, & 5.4)

Section	Title	2023 NJSLS for Mathematics	Suggested Problems *Teachers must assign mixed review problems as part of homework assignments.*
5.1	nth Roots and Rational Exponents	N-RN.A.1, N-RN.A.2, N-RN.A.3	*For objectives relating to simplifying expressions with rational exponents teacher should use Kuta or other supplementary materials.* Big Ideas Text pg. 241: #5-10, 21-31, 35-42, 51-54 Supplemental Text: Prentice Hall Algebra 2 pg. 389 #1-49
5.2	Properties of Rational Exponents and Radicals	N-RN.A.2, N-RN.A.3	Big Ideas Text pg. 248: #1-6, 13-16, 37, 41, 42, 44, 49-52, 57, 58, 63, 65, 66, 82- 87 Supplemental Text: Prentice Hall Algebra 2 pg. 377 #1-35 and pg382 #1-12
5.4	Solving Radical Equations and Inequalities	N-RN.A.3, A-REI.A.1, A-REI.A.2	Big Ideas Text pg. 266: #1-18, 21, 22, 27-32, 35, 36, 58 Supplemental Text: Prentice Hall Algebra 2 pg. 394: #1-30

Course Expectations and Skills

- Students are required to have proficiency in all prerequisite topics for Algebra 1 and Geometry. Those who do not demonstrate proficiency will be required to seek additional help after school to close their achievement gap in order to be successful in this course.
- Students are required to learn and utilize a graphing calculator (TI-84+) in this course. They are encouraged to purchase a graphing calculator, but not required. Classroom sets are available for teachers to use as needed. In addition, free on-line graphing apps and programs are promoted by teachers for students to use on homework.
- Students are required to participate in both small and large group discussions and activities, as directed.
- Students are required to complete a project each marking period, including those which require the use of technology.

Resources
Text Book: Big Ideas Algebra 2, Big Ideas Geometry, Big Ideas Algebra 1

Assessment Information

Department of Mathematics- Algebra 2 Integrated

Marking Periods 1 - 4	
Category	Percentage
Major	40%
Minor	30%
Project (MP 1 & 3) Benchmark (MP 2 & 4)	10%
Class Participation	5%
Homework	15%