INTRO TO

ALGEBRA FOUNDATIONS

SYLLABUS

2022- 2023 Academic School-Year

Marking Period 1

Section	Title	NJSLS	Resources	Problems *Teachers should assign mixed review problems as needed
1.1	**Variables and Variable Expressions**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3**	**Pre-Algebra Textbook, practice workbook 1-1, enrichment 1-1 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 6 #1-32** **IXL PRACTICE:** • **Level FG.1 Write variable expressions Shortcut: VYY** • **Level FG.2 Write variable expressions: word problems Shortcut: KPS** • **Level GU.1 Write variable expressions Shortcut: UZZ**
1.2	**Order of Operations**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3**	**Pre-Algebra Textbook, practice workbook 1-2, enrichment 1-2 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 11-12 #1-22, 24-32, 46** **IXL PRACTICE:** • **Level EM.14 Perform multiple operations with whole numbers Shortcut: UKB** • **Level EN.2 Understanding parentheses Shortcut: CXK** • **Level HO.5 Identify mistakes involving the order of operations Shortcut: V46**
1.3	**Evaluating Expressions**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3**	**Pre-Algebra Textbook, practice workbook 1-3, enrichment 1-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 16 #1-26** **IXL PRACTICE:** • **Level FG.3 Evaluate variable expressions Shortcut: 88L** • **Level HY.4 Evaluate variable expressions with whole numbers Shortcut: Q8Z** • **Level HY.5 Evaluate multi-variable expressions Shortcut: HC9**
1.4	**Integers and Absolute Value**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3**	**Pre-Algebra Textbook, practice workbook 1-4, enrichment 1-4 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 20 #1-46** **IXL PRACTICE:** • **Level HM.6 Absolute value Shortcut: 2YZ** • **Level HM.5 Understanding absolute value Shortcut: TLR** • **Level IR.6 Evaluate absolute value expressions Shortcut: YL5**
1.5, 1.6, 1.9	**Operations with Integers**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3**	**Pre-Algebra Textbook, practice workbook 1-5, enrichment 1-5, workbook 1-6, enrichment 1-6, workbook 1-9, enrichment 1-9 Kuta Pre-Algebra Software Kuta Algebra Software**	**p. 27-28 #13-26, 45-48, 52-54; p. 32-33 #18-44, 51-53, 66-68; p. 47 #4-28, 50, 67** **IXL PRACTICE:** • **Level IC.11 Add and subtract integers using counters Shortcut: B8X** • **Level HN.12 Multiply integers: find the sign Shortcut: DKA**

			IXL	• Level IC.21 Integer multiplication and division rules Shortcut: 5R8
1.10	The Coordinate Plane	NJSLS.6.NS.C.8	Pre-Algebra Textbook, practice workbook 1-10, enrichment 1-10 Kuta Pre-Algebra Software Kuta Algebra Software IXL	p. 52 #1-37 IXL PRACTICE: • Level EU.1 Objects on a coordinate plane Shortcut: UDC • Level EU.2 Coordinate planes as maps Shortcut: X2A • Level EU.3 Graph points on a coordinate plane Shortcut: ETB
4.1	Divisibility and Factors	NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3	Pre-Algebra Textbook, Practice Workbook 4-1, Enrichment 4-1 Kuta Pre-Algebra Software Kuta Algebra Software IXL	p. 180 #1-42 IXL PRACTICE: Level EL.10 Divisibility rules for 2, 5, and 10 Shortcut: V6H Level FE.26 Divisibility rules Shortcut: UTK Level EL.12 Divisibility rules for 4 and 8 Shortcut: D82
3.1	Rounding	NJSLS.6.SP.B.5c NJSLS.6.NS.B.4 NJSLS.6.NS.C.6	Pre-Algebra Textbook, Practice Workbook 3-3, Enrichment 3-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL	p. 130 #1-8 IXL PRACTICE: Level DN.3 Round to the nearest ten or hundred Shortcut: 5CT Level FS.15 Round decimals Shortcut: XFX Level GG.10 Round decimals Shortcut: MPB
3.3	Measures of Central Tendency	NJSLS.6.SP.B.5c NJSLS.6.NS.B.4 NJSLS.6.NS.C.6	Pre-Algebra Textbook, Practice Workbook 3-1, Enrichment 3-1 Kuta Pre-Algebra Software Kuta Algebra Software IXL	p. 140-141 #1-9, 18-22, 26-28 IXL PRACTICE: Level FU.1 Find the mode Shortcut: M9S Level FU.2 Find the mean Shortcut: 76J Level FU.3 Find the median Shortcut: QPS
4.3	Greatest Common Factor	NJSLS.6.SP.B.5c NJSLS.6.NS.B.4 NJSLS.6.NS.C.6	Pre-Algebra Textbook, Practice Workbook 4-3, Enrichment 4-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL	p. 189-190 #1-20, 25-28, 30-35, 45-48 IXL PRACTICE: Level GF.8 Greatest common factor Shortcut: 4C2 Level GF.9 Greatest common factor of three numbers Shortcut: 7TA Level IA.5 Greatest common factor Shortcut: YFF
4.2	Operations with Exponents	NJSLS.6.EE.A.1 NJSLS.8.EE.A.1 NJSLS.8.EE.A.3, NJSLS.8.EE.A.4	Pre-Algebra Textbook, Practice Workbook 4-3, Enrichment 4-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL	p. 184 #1-23, 34-39 IXL PRACTICE: Level GE.8 Understanding exponents Shortcut: VDP Level II.1 Understanding exponents Shortcut: BFA
4.7	Exponents and Multiplication	NJSLS.6.EE.A.1 NJSLS.8.EE.A.1 NJSLS.8.EE.A.3, NJSLS.8.EE.A.4	Pre-Algebra Textbook, Practice Workbook 4-2, Enrichment 4-2 Kuta Pre-Algebra Software Kuta Algebra Software IXL	p. 207 #1-18 IXL PRACTICE: Level JD.9 Multiplication with exponents Shortcut: EQY

Marking Period 2

Section	Title	NJSLS	Resources	Problems *Teachers should assign mixed review problems as needed
4.2	**Operations with Exponents**	**NJSLS.6.EE.A.1 NJSLS.8.EE.A.1 NJSLS.8.EE.A.3, NJSLS.8.EE.A.4**	**Pre-Algebra Textbook, Practice Workbook 4-3, Enrichment 4-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 184 #1-23, 34-39 IXL PRACTICE: Level GE.8 Understanding exponents Shortcut: VDP Level II.1 Understanding exponents Shortcut: BFA**
4.7	**Exponents and Multiplication**	**NJSLS.6.EE.A.1 NJSLS.8.EE.A.1 NJSLS.8.EE.A.3, NJSLS.8.EE.A.4**	**Pre-Algebra Textbook, Practice Workbook 4-2, Enrichment 4-2 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 207 #1-18 IXL PRACTICE: • Level JD.9 Multiplication with exponents Shortcut: EQY**
4.8	**Exponents and Division**	**NJSLS.6.EE.A.1 NJSLS.8.EE.A.1 NJSLS.8.EE.A.3, NJSLS.8.EE.A.4**	**Pre-Algebra Textbook, Practice Workbook 4-8, Enrichment 4-8 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 213 #1-24, 35 IXL PRACTICE: • Level JD.10 Division with exponents Shortcut: M2C • Level KW.5 Division with exponents Shortcut: 9SS**
5.9	**Powers of Products and Quotients**	**NJSLS.6.EE.A.1 NJSLS.8.EE.A.1 NJSLS.8.EE.A.3, NJSLS.8.EE.A.4**	**Pre-Algebra Textbook, Practice Workbook 5-9, Enrichment 5-9 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 207 #19-27; p. 276 #1-12, 24-26, 29-31**
2.2	**The Distributive Property**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B. NJSLS.6.EE.A.3 3**	**Pre-Algebra Textbook, Practice Workbook 2-2, Enrichment 2-2Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 74 #1-15, #18-35 IXL PRACTICE: • Level IR.14 Multiply using the distributive property Shortcut: NUY • Level JX.13 Multiply using the distributive property Shortcut: U7T • Level HY.14 Multiply using the distributive property Shortcut: 2HH**
2.3	**Simplifying Variable Expressions**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B. NJSLS.6.EE.A.3 3**	**Pre-Algebra Textbook, Practice Workbook 2-3, Enrichment 2-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 78 #1-6, #11-31 IXL PRACTICE: • Level IR.11 Simplify expressions by combining like terms: with algebra tiles Shortcut: PCU • Level IR.12 Simplify expressions by combining like terms Shortcut: JJG • Level HY.20 Add and subtract like terms Shortcut: CN9**

2.4	**Variables and Equations**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B. NJSLS.6.EE.A.3 3**	**Pre-Algebra Textbook, Practice Workbook 2-4, Enrichment 2-4 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 82 #1-20 IXL PRACTICE:** • **Level GO.13 Equations with mixed operations: true or false Shortcut: QR9** • **Level DG.18 Balance addition equations - up to two digits Shortcut: NH7**
2.5	**Solving One-Step Equations with Addition and Subtraction**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B. NJSLS.6.EE.A.3 3**	**Pre-Algebra Textbook, Practice Workbook 2-5, Enrichment 2-5 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 89-90 #1-22, 25-33, 36-46 IXL PRACTICE:** • **Level FG.5 Solve variable equations Shortcut: XWW** • **Level HZ.8 Solve one-step addition and subtraction equations with whole numbers Shortcut: JXM**
2.6	**Solving One-Step Equations with Multiplication and Division**	**NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B. NJSLS.6.EE.A.3 3**	**Pre-Algebra Textbook, Practice Workbook 2-6, Enrichment 2-6**	**p. 94-95 #1-36, 44, 48-50 IXL PRACTICE:** • **Level HZ.9 Solve one-step multiplication and division equations with whole numbers Shortcut: JUA**
2.8	**Inequalities and Their Graphs**	**NJSLS.9-12.A-CED.A .1, NJSLS.9-12.A-REI.B. 3 NJSLS.9-12.A-CED.A .1, NJSLS.9-12.A-REI.B. 3 NJSLS.9-12.A-REI.B. 3**	**Pre-Algebra Textbook, Practice Workbook 2-8, Enrichment 2-8 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 104-105 #1-32, 34-36 IXL PRACTICE:** • **Level IT.3 Write inequalities from number lines Shortcut: JNL** • **Level HAA.2 Graph inequalities on number lines Shortcut: CXX**
2.9	**Solving One-Step Inequalities by Adding and Subtracting**	**NJSLS.9-12.A-CED.A .1, NJSLS.9-12.A-REI.B. 3 NJSLS.9-12.A-CED.A .1, NJSLS.9-12.A-REI.B. 3 NJSLS.9-12.A-REI.B. 3**	**Pre-Algebra Textbook, Practice Workbook 2-9, Enrichment 2-9 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 108 #1-19, 22-34 IXL PRACTICE:** • **Level DK.5 Solve inequalities using addition and subtraction shortcuts Shortcut: 87Q** • **Level KK.4 Solve one-step linear inequalities: addition and subtraction Shortcut: RZV**
2.10	**Solving One-Step Inequalities by Multiplying or Dividing**	**NJSLS.9-12.A-CED.A .1, NJSLS.9-12.A-REI.B. 3 NJSLS.9-12.A-CED.A .1, NJSLS.9-12.A-REI.B. 3 NJSLS.9-12.A-REI.B. 3**	**Pre-Algebra Textbook, Practice Workbook 2-10, Enrichment 2-10 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 113-114 #1-39, 50 IXL PRACTICE:** • **Level HAA.5 Solve one-step inequalities Shortcut: KRH** • **Level KK.5 Solve one-step linear inequalities: multiplication and division Shortcut: BRJ**

Marking Period 3

Section	Title	NJSLS	Resources	Problems *Teachers should assign mixed review problems as needed
6.1	**Ratios**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 6-1, Enrichment 6-1 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 209 #1-12** **IXL PRACTICE:** • **Level IJ.1 Understanding ratios Shortcut: ZTC** • **Level HR.5 Identify equivalent ratios Shortcut: 2LM** • **Level IJ.2 Identify equivalent ratios Shortcut: ZFM**
6.2	**Proportions**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 6-2, Enrichment 6-2 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 296-297 #1-41, 50-51, 54, 55-59** **IXL PRACTICE:** • **Level IJ.9 Do the ratios form a proportion? Shortcut: MJQ** • **Level IJ.11 Solve proportions Shortcut: TDA** • **Level JJ.9 Solve proportions Shortcut: BNY**
6.3	**Similar Figures and Scale Drawings**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 6-3, Enrichment 6-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 301 #1-19** **IXL PRACTICE:** • **Level IAA.17 Side lengths and angle measures of similar figures Shortcut: JA5** • **Level IZ.1 Scale drawings of polygons Shortcut: WEA**
6.5	**Fractions, Decimals and Percents**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 6-5, Enrichment 6-5 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 312-313 #1-48, 71, 72** **IXL PRACTICE:** • **Level GQ.2 Convert between percents, fractions, and decimals Shortcut: 2VM** • **Level HS.4 Convert between percents, fractions, and decimalsShortcut: ZAV** • **Level HS.5 Convert between percents, fractions, and decimals: word problems Shortcut: 7CZ**

6.6	**Proportions and Percents**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 6-6, Enrichment 6-6 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 318-319 #3-31, 34 IXL PRACTICE:** • **Level IJ.11 Solve proportions Shortcut: TDA** • **Level JJ.9 Solve proportions Shortcut: BNY** • **Level JJ.10 Solve proportions: word problems Shortcut: 5XV**
6.8	**Percent of Change**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 6-8, Enrichment 6-8 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 327-328 #1-30, 32, 39, 40 IXL PRACTICE:** • **Level IL.10 Percent of change Shortcut: BL7** • **Level JL.10 Percent of change Shortcut: NYH** • **Level KD.4 Percent of change Shortcut: GRG**
6.9	**Discounts**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 6.9, Enrichment 6.9 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 331-332 #11-17, 20-23 IXL PRACTICE:** • **Level JM.5 Percent of a number: tax, discount, and more Shortcut: KZZ**
5.5	**Measurements**	**NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3 NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3 NJSLS.7.RP.A.3**	**Pre-Algebra Textbook, Practice Workbook 5-5, Enrichment 5-5 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 255 #1-36**

Marking Period 4

Section	Title	NJSLS	Resources	Problems *Teachers should assign mixed review problems as needed
7.1	**Solving Two-Step Equations**	**NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.4**	**Pre-Algebra Textbook, Practice Workbook 7-1, Enrichment 7-1 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 350-351 #1-34 IXL PRACTICE:** • **Level IS.7 Solve two-step equations without parentheses Shortcut: CMX** • **Level IS.9 Solve two-step equations Shortcut: QEB**
7.2	**Solving Multi-Step Equations**	**NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.4**	**Pre-Algebra Textbook, practice workbook 7-2, enrichment 7-2 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 355-356 #1-8, 10-23, 26-30, 33, 34 IXL PRACTICE:** • **Level HZ.19 Solve equations involving like terms Shortcut: W82** • **Level JY.11 Solve equations involving like terms Shortcut: Q2B** • **Level JY.15 Solve multi-step equations Shortcut: 55K**
7.5	**Solving Equations with Variables on Both Sides**	**NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.4**	**Pre-Algebra Textbook, practice workbook 7-5, enrichment 7-5 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 369-371 #3-23, 26-33 IXL PRACTICE:** • **Level JY.12 Solve equations with variables on both sides Shortcut: ZYL**
7.6	**Solving Two-Step Inequalities**	**NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.4**	**Pre-Algebra Textbook, practice workbook 7-6, enrichment 7-6 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 375 #1-22 IXL PRACTICE:** • **Level KK.8 Solve two-step linear inequalities Shortcut: NPZ** • **Level KK.9 Graph solutions to two-step linear inequalities Shortcut: XVM**
7.7	**Transforming Formulas**	**NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3 NJSLS.9-12.A-CED.A.4**	**Pre-Algebra Textbook, practice workbook 7-7, enrichment 7-7 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 380 #3-14**

8.1	**Relations and Functions**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1, NJSLS.9-12.A-CED.A. NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-1, enrichment 8-1 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 403-404 #1-5, 11-22, 23 IXL PRACTICE:** • **Level JBB.1 Identify functions Shortcut: ELJ** • **Level JBB.2 Identify functions: graphs Shortcut: AEB**
8.2	**Equations with Two Variable**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1 NJSLS.9-12.A-CED.A. NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-2, enrichment 8-2 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 408-409 #1-11, 18-20, 21-26, 28-34, 35-37**
8.3	**Slope and y-intercept**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1 NJSLS.9-12.A-CED.A. NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-3, enrichment 8-3 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 414-416 #1-21, 23-24, 30-38 IXL PRACTICE:** • **Level JAA.4 Slope-intercept form: find the slope and y-intercept Shortcut: U55** • **Level KT.6 Slope-intercept form: find the slope and y-intercept Shortcut: R5T**
8.4	**Writing Rules for Linear Functions**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1 NJSLS.9-12.A-CED.A.2 NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-4, enrichment 8-4 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 420-421 #1-3, 7-8, 13-25, 26 IXL PRACTICE:** • **Level DL.7 Write the addition or subtraction rule for an input/output table - up to 20 Shortcut: CPP** • **Level KQ.13 Complete a function table from an equation Shortcut: Z73**
8.5	**Scatter Plots**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1 NJSLS.9-12.A-CED.A.2 NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-5, enrichment 8-5 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 426-427 #1-25 IXL PRACTICE:** • **Level KMM.8 Interpret a scatter plot Shortcut: 8BS** • **Level ICC.17 Identify trends with scatter plots Shortcut: 7T5** • **Level JEE.16 Create scatter plots Shortcut: AVL**
8.6	**Solving by Graphing**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1 NJSLS.9-12.A-CED.A.2 NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-6, enrichment 8-6 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 432 #1-6 IXL PRACTICE:** • **Level JCC.2 Solve a system of equations by graphing Shortcut: WV5** • **Level KV.2 Solve a system of equations by graphing Shortcut: TSS**

8.7	**Solving Systems of Linear Equations**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1 NJSLS.9-12.A-CED.A.2 NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-7, enrichment 8-7 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 438 #1-25; Kuta worksheets for each type Substitution, Elimination and Graphing IXL PRACTICE:** • **Level JCC.8 Solve a system of equations using substitution Shortcut: J8X** • **Level JCC.10 Solve a system of equations using elimination Shortcut: ZQV**
8.8	**Graphing Linear Inequalities**	**NJSLS.8.F.A.1 NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1 NJSLS.9-12.A-CED.A.2 NJSLS.9-12.A-REI.D.12**	**Pre-Algebra Textbook, practice workbook 8-8, enrichment 8-8 Kuta Pre-Algebra Software Kuta Algebra Software IXL**	**p. 444 #1-29 IXL PRACTICE:** • **Level KU.4 Write a linear inequality from a graph Shortcut: N9W** • **Level MC.8 Graph a two-variable linear inequality Shortcut: RWU**

Grading Scale

50% Homework, classwork, binder/notebook, projects
30% Warm ups, class participation, technology activities
20% Quizzes, Tests

Course Expectations and Skills

- Students are required to take notes and maintain those notes in a neat and organized notebook/binder.
- Students are required to participate actively in class discussions and group work.
- Students will learn by doing, not just watching.
- Students should expect that there will be concepts that are not grasped immediately. Learn to be persistent in thinking and problem solving.
- Students should ask questions during discussion, within a group setting, or individually.
- Students are required to complete homework assignments daily.
- Students should seek help from teachers and other resources.

Resources

Text Book: *Pre-Algebra,* Prentice Hall

Supplemental Materials:

Pre-Algebra 1 Practice Workbook
Kuta Pre-Algebra Software
Kuta Algebra Software
IXL
Dynamic Algebra Software
Algebra 1 Foundations Series Text

Black Horse Pike Regional School District Curriculum

ENGAGING STUDENTS ● FOSTERING ACHIEVEMENT ● CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Introduction to Algebra Foundations

UNIT 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: **Introduction to Algebra / Operations with Real Numbers** **Grade Level(s):** **9**	**Unit Summary**: In this unit, the basic language of algebra is introduced. First, students will perform operations with integers, decimals, and fractions and simplify expressions containing integers using all four mathematical operations. Students will also explore coordinate planes. They will name coordinates and quadrants, and graph points. This unit will be completed without the use of a calculator during some of the instruction, but most times students will be allowed the use of a calculator.
Essential Question(s): • **How do you perform operations with integers?** • **How do you graph points in the coordinate plane?**	**Enduring Understanding(s):** Students will be able to: • Add, subtract, multiply, and divide integers. • Add, subtract, multiply, and divide decimals. • Add, subtract, multiply, and divide integers fractions. • Simplify expressions using the order of operations. • Name coordinates and quadrants in the coordinate plane. • Graph points in the coordinate plane.

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	NJSLS:
1. Perform operations with real numbers. [*Standard*] - Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. [*Standard*] - Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. [*Standard*] - Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	**1. NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3**
2. Graph points in the coordinate plane. [*Standard*] - Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	**2. NJSLS.6.NS.C.8**

Interdisciplinary Connections:

Real-World problem solving examples:
Finding elevation using integer addition (p. 26), using integer addition to find net gains or losses in football (p. 28), using integer subtraction to find temperature after a drop (p. 31), using integer subtraction to find a bank account balance (p. 32), using multiplication of integers to find the distance traveled by a submarine (p. 44), using integer division to find a stock price (p. 48), using ordered pairs to represent latitude and longitude of map locations (p. 53), using the distributive property (p. 72), adding mixed numbers to find total distance (p. 244), using mixed numbers to determine area (p. 249)

Interdisciplinary problem solving examples:
Architecture (p. 10), earth science (p. 26), sports (p. 28), financial planning (p. 48), geography (p. 53), geography (p. 245), geometry (p. 249), construction (p. 251)

Students will engage with the following text:

Text:

- *Pre-Algebra,* Prentice Hall Mathematics, 2004
- Algebra 1, A Common Core Curriculum – Big Ideas Math, *Big Ideas Learning LLC., 2019*
- Algebra 1, Fou, *Pearson Education Inc., 2015*

Online Resources incorporated through the year, include but not limited to:

- BigIdeasMath.com – publisher on-line assignments, resources and text
- Desmos – online graphing tool
- IXL – web-based software
- G Suite for education – Google Classroom, Docs, Drive, Mail, etc…

Calculators:

- TI – 84 Plus graphing calculator
- TI – 30 XS MultiView

The following 21st century skills and the 8 mathematical practices are embedded throughout the course and are evident in daily lessons, assignments, activities, assessments and projects:

21st Century skills:

- Critical thinking
- Creativity
- Collaboration
- Communication
- Information literacy
- Technology literacy
- Media literacy
- Flexibility
- Leadership
- Initiative
- Productivity
- Social skills

Mathematical Practices:

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning

Students will write:

Writing/Open-Ended Questions:
Explaining integer addition (p. 28), writing expressions to represent temperatures on a thermometer (p. 33), comparing graphs (p. 53), explaining how to use the distributive property (p. 75), estimating sum and difference (p. 246)

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills?

Students will uncover and build skills through various classroom learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Variables and Variable Expressions (Sections 1.1):

Warm-up/Starting Options	**p. 4 check skills you'll need**
Practice and Apply	**p. 6 #1-32** **IXL PRACTICE:** **Level FG.1 Write variable expressions Shortcut: VYY** **Level FG.2 Write variable expressions: word problems Shortcut: KPS** **Level GU.1 Write variable expressions Shortcut: UZZ**
Resources	**Pre-Algebra Textbook, practice workbook 1-1, enrichment 1-1**

Order of Operations (Section 1.2):

Warm-up/Starting Options	**p. 8 check skills you'll need**
Practice and Apply	**p. 11-12 #1-22, 24-32, 46** **IXL PRACTICE:** **Level EM.14 Perform multiple operations with whole numbers Shortcut: UKB** **Level EN.2 Understanding parentheses Shortcut: CXK** **Level HO.5 Identify mistakes involving the order of operations Shortcut: V46**
Resources	**Pre-Algebra Textbook, practice workbook 1-2, enrichment 1-2**

Evaluating Expressions (Section 1.3):

Warm-up/Starting Options	**p. 14 check skills you'll need**
Practice and Apply	**p. 16 #1-26** **IXL PRACTICE:** **Level FG.3 Evaluate variable expressions Shortcut: 88L** **Level HY.4 Evaluate variable expressions with whole numbers Shortcut: Q8Z** **Level HY.5 Evaluate multi-variable expressions Shortcut: HC9**

Resources	Pre-Algebra Textbook, practice workbook 1-3, enrichment 1-3

Integers and Absolute Value (Section 1.4):

Warm-up/Starting Options	p. 18 check skills you'll need
Practice and Apply	p. 20 #1-46 **IXL PRACTICE:** **Level HM.6 Absolute value Shortcut: 2YZ** **Level HM.5 Understanding absolute value Shortcut: TLR** **Level IR.6 Evaluate absolute value expressions Shortcut: YL5**
Resources	Pre-Algebra Textbook, practice workbook 1-4, enrichment 1-4

Operations with Integers (Sections 1.5, 1.6, 1.9):

Warm-up/Starting Options	p. 24 check skills you'll need
Practice and Apply	p. 27-28 #13-26, 45-48, 52-54; p. 32-33 #18-44, 51-53, 66-68; p. 47 #4-28, 50, 67 **IXL PRACTICE:** **Level IC.11 Add and subtract integers using counters Shortcut: B8X** **Level HN.12 Multiply integers: find the sign Shortcut: DKA** **Level IC.21 Integer multiplication and division rules Shortcut: 5R8**
Resources	Pre-Algebra Textbook, practice workbook 1-5, enrichment 1-5, workbook 1-6, enrichment 1-6, workbook 1-9, enrichment 1-9

The Coordinate Plane (Section 1.10):

Warm-up/Starting Options	p. 50 check skills you'll need
Practice and Apply	p. 52 #1-37 **IXL PRACTICE:** **Level EU.1 Objects on a coordinate plane Shortcut: UDC** **Level EU.2 Coordinate planes as maps Shortcut: X2A** **Level EU.3 Graph points on a coordinate plane Shortcut: ETB**
Resources	Pre-Algebra Textbook, practice workbook 1-10, enrichment 1-10

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR
UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.
IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student recordkeeping, quizzes, entrance and exit tickets, peer/self-assessments, learning/response logs, discussions and practice presentations.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- Diagnostic Pre-Test
- Chapter Tests
- Standard Related projects

Performance Assessments:

Performance Tasks and Projects

Accommodations/Modifications:

As per IEP.

Revised 08-2022

Black Horse Pike Regional School District Curriculum

ENGAGING STUDENTS ⚫ FOSTERING ACHIEVEMENT ⚫ CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Introduction to Algebra Foundations

UNIT 2

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: **Introduction to Algebra / Factors and Comparing Numbers** **Grade Level(s):** **9**	**Unit Summary**: In this unit, students will practice rounding decimals. Students will also be introduced to the measures of central tendency; mean, median, and mode. They will apply rules to find prime factorizations and the greatest common factor.
Essential Question(s): • **How do you find mean, median, and mode?** • **How do you find the GCF?**	**Enduring Understanding(s):** Students will be able to: • Round decimals • Find mean, median, and mode of a set of data • Choose the best measure of central tendency • Find the prime factorization of a number • Find the greatest common factor of two or more numbers

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	**NJSLS:**
1. Calculate measures of central tendency [*Standard*] - Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	**1. NJSLS.6.SP.B.5c**
2. Finding the GCF. [*Standard*] - Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	**2. NJSLS.6.NS.B.4**
3. Simplify expressions with exponents. [*Standard*] - Write and evaluate numerical expressions involving whole-number exponents.	**NJSLS:** **3. NJSLS.6.EE.A.1**
4. Use the rules of exponents. [*Standard*] - Know and apply the properties of integer exponents to generate equivalent numerical expressions.	**4. NJSLS.8.EE.A.1**

Interdisciplinary Connections:

Real-World problem solving examples:
Estimating total cost while grocery shopping (p. 128), estimating total long-distance phone charges for a given month (p. 129), finding the difference in size between the Great Lakes (p. 130), finding average rainfall in a given city of the United States (p. 131), using a chart to approximate land areas (p. 139), evaluating fractions containing variables (p. 202), using least common multiple to determine when sports teams will play at the same time (p. 232), using equivalent fractions to determine which team wins a competition (p. 234)

Interdisciplinary problem solving examples:
Finance (p. 128), geography (p. 130), meteorology (p. 131), science (p. 202), Physical Education (p. 232), measurement (p. 235)

Students will engage with the following text:

Text:

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- Algebra 1, A Common Core Curriculum – Big Ideas Math, *Big Ideas Learning LLC., 2019*
- Algebra 1, Fou, *Pearson Education Inc., 2015*

Online Resources incorporated through the year, include but not limited to:

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Calculators:

- TI – 84 Plus graphing calculator
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21st Century skills:

- Critical thinking
- Creativity
- Collaboration
- Communication
- Information literacy
- Technology literacy
- Media literacy
- Flexibility
- Leadership
- Initiative
- Productivity
- Social skills

Mathematical Practices:

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning

Students will write:

Writing/Open-Ended Questions:
Estimating by rounding decimals (p. 131), finding equivalent fractions (p. 236)

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills?

Students will uncover and build skills through various classroom learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Divisibility and Factors (Section 4.1)

Warm-up/Starting Options	**P 178 Check Skills You'll Need**
Practice and Apply	**p. 180 #1-42** **IXL PRACTICE:** **Level EL.10 Divisibility rules for 2, 5, and 10 Shortcut: V6H** **Level FE.26 Divisibility rules Shortcut: UTK** **Level EL.12 Divisibility rules for 4 and 8 Shortcut: D82**
Resources	**Pre-Algebra Textbook, Practice Workbook 4-1, Enrichment 4-1**

Rounding (Section 3.1):

Warm-up/Starting Options	**p. 127 Check Skills You'll Need**
Practice and Apply	**p. 130 #1-8** **IXL PRACTICE:** **Level DN.3 Round to the nearest ten or hundred Shortcut: 5CT** **Level FS.15 Round decimals Shortcut: XFX** **Level GG.10 Round decimals Shortcut: MPB**
Resources	**Pre-Algebra Textbook, Practice Workbook 3-1, Enrichment 3-1**

Measures of Central Tendency (Section 3.3):

Warm-up/Starting Options	**P 137 Check Skills You'll Need**
Practice and Apply	**p. 140-141 #1-9, 18-22, 26-28**

	IXL PRACTICE: Level FU.1 Find the mode Shortcut: M9S Level FU.2 Find the mean Shortcut: 76J Level FU.3 Find the median Shortcut: QPS
Resources	Pre-Algebra Textbook, Practice Workbook 3-3, Enrichment 3-3

Greatest Common Factor (Section 4.3)

Warm-up/Starting Options	P 186 Check Skills You'll Need
Practice and Apply	p. 189-190 #1-20, 25-28, 30-35, 45-48 IXL PRACTICE: Level GF.8 Greatest common factor Shortcut: 4C2 Level GF.9 Greatest common factor of three numbers Shortcut: 7TA Level IA.5 Greatest common factor Shortcut: YFF
Resources	Pre-Algebra Textbook, Practice Workbook 4-3, Enrichment 4-3

Operations with Exponents (Section 4.2):

Warm-up/Starting Options	p. 182 Check Skills You'll Need
Practice and Apply	p. 184 #1-23, 34-39 IXL PRACTICE: Level GE.8 Understanding exponents Shortcut: VDP Level II.1 Understanding exponents Shortcut: BFA
Resources	Pre-Algebra Textbook, Practice Workbook 4-2, Enrichment 4-2

Exponents and Multiplication (Section 4.7):

Warm-up/Starting Options	p. 205 Check Skills You'll Need
Practice and Apply	p. 207 #1-18 IXL PRACTICE: Level JD.9 Multiplication with exponents Shortcut: EQY
Resources	Pre-Algebra Textbook, Practice Workbook 4-7, Enrichment 4-7

Exponents and Division (Section 4.8):

Warm-up/Starting Options	p. 210 Check Skills You'll Need
Practice and Apply	p. 213 #1-24, 35 IXL PRACTICE: Level JD.10 Division with exponents Shortcut: M2C Level KW.5 Division with exponents Shortcut: 9SS

Resources	**Pre-Algebra Textbook, Practice Workbook 4-8, Enrichment 4-8**

Powers of Products and Quotients (Section 5.9):

Warm-up/Starting Options	**p. 274 Check Skills You'll Need**
Practice and Apply	**p. 207 #19-27; p. 276 #1-12, 24-26, 29-31**
Resources	**Pre-Algebra Textbook, Practice Workbook 5-9, Enrichment 5-9**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student recordkeeping, quizzes, entrance and exit tickets, peer/self-assessments, learning/response logs, discussions and practice presentations.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- Diagnostic Pre-Test
- Chapter Tests
- Standard Related projects

Performance Assessments:

Performance Tasks and Projects

Accommodations/Modifications:

As per IEP.

Black Horse Pike Regional School District Curriculum

Course Name: Introduction to Algebra Foundations

UNIT 3

PART I: UNIT RATIONALE

<u>WHY</u> ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<table>
<tr><td>Course/Unit Title:
Introduction to Algebra / Use the Distributive Property and Solving One Step Equations and Inequalities</td><td rowspan="2">Unit Summary:
In this unit, students will learn how to use the distributive property and combine like terms. They will solve one-step equations using addition, subtraction, multiplication and division. Lastly, students will identify and solve one-step inequalities.</td></tr>
<tr><td>Grade Level(s):
9</td></tr>
<tr><td>Essential Question(s):
• How do you use the distributive property and identify like terms?
• How do you solve one-step equations?
• How do you write and graph inequalities?
• How do you solve one-step inequalities?</td><td>Enduring Understanding(s):
Students will be able to:
• Use the distributive property.
• Identify and combine like terms.
• Solve One-Step equations
• Graph inequalities
• Write inequalities from a graph
• Solve one-step inequalities using addition and subtraction
• Solve one-step inequalities using multiplication and division</td></tr>
</table>

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	**NJSLS:**
1. Perform operations with real numbers. [*Standard*] - Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. [*Standard*] - Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then –(p/q) = (–p)/q = p/(–q). Interpret quotients of rational numbers by describing real-world contexts. [*Standard*] - Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	**1. NJSLS.6.NS.C.5, NJSLS.7.NS.A.2b, NJSLS.7.EE.B.3**
2. Use distributive property. [*Standard*] - Apply the properties of operations to generate equivalent expressions.	**2. NJSLS.6.EE.A.3**
3. Graph inequalities. [*Standard*] - Create equations and inequalities in one variable and use them to solve problems. [*Standard*] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	**3. NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3**
4. Write inequalities. [*Standard*] - Create equations and inequalities in one variable and use them to solve problems [*Standard*] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters	**4. NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3**
5. Solve one -step inequalities. [*Standard*] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	**5. NJSLS.9-12.A-REI.B.3**

Interdisciplinary Connections:

Real-World problem solving examples:
To use the distributive property (p. 72), adding mixed numbers to find total distance (p. 244), using mixed numbers to determine area (p. 249)

Writing an inequality to find the amount of sodium in food (p. 103), writing an inequality to describe the height restrictions on an amusement park ride (p. 104), writing and solving an inequality using addition to determine the amount of memory that can be added to a computer (p. 107), using inequalities to determine the number of average sized adults that can safely ride an elevator at one time (p. 111), using inequalities to determine minimum food on a camping trip (p. 374), using inequalities to determine average speed (p. 375), using inequalities to determine the minimum distance a taxi can travel (p. 375), using inequalities to determine how long it takes to pay back a loan (p. 376)

Interdisciplinary problem solving examples:
Architecture (p. 10), earth science (p. 26), sports (p. 28), financial planning (p. 48), geography (p. 53), geography (p. 245), geometry (p. 249), construction (p. 251) Nutrition (p. 103), photography (p. 375)

Students will engage with the following text:

Text:

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Students will write:

Writing/Open-Ended Questions:
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PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills?

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Suggested warm-up activities, instructional strategies/activities, and assignments:

The Distributive Property (Section 2.2):

Warm-up/Starting Options	**p. 71 Check Skills You'll Need**
Practice and Apply	**p. 74 #1-15, #18-35** **IXL PRACTICE:** **Level IR.14 Multiply using the distributive property Shortcut: NUY** **Level JX.13 Multiply using the distributive property Shortcut: U7T** **Level HY.14 Multiply using the distributive property Shortcut: 2HH**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-2, Enrichment 2-2**

Simplifying Variable Expressions (Section 2.3):

Warm-up/Starting Options	**p. 76 Check Skills You'll Need**
Practice and Apply	**p. 78 #1-6, #11-31** **IXL PRACTICE:** **Level IR.11 Simplify expressions by combining like terms: with algebra tiles Shortcut: PCU** **Level IR.12 Simplify expressions by combining like terms Shortcut: JJG** **Level HY.20 Add and subtract like terms Shortcut: CN9**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-3, Enrichment 2-3**

Variables and Equations (Section 2.4):

Warm-up/Starting Options	**p. 80 Check Skills You'll Need**
Practice and Apply	**p. 82 #1-20**

	IXL PRACTICE: **Level GO.13 Equations with mixed operations: true or false Shortcut: QR9** **Level DG.18 Balance addition equations - up to two digits Shortcut: NH7**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-4, Enrichment 2-4**

Solving One-Step Equations with Addition and Subtraction (Section 2.5):

Warm-up/Starting Options	**p. 86 Check Skills You'll Need**
Practice and Apply	**p. 89-90 #1-22, 25-33, 36-46** **IXL PRACTICE:** **Level FG.5 Solve variable equations Shortcut: XWW** **Level HZ.8 Solve one-step addition and subtraction equations with whole numbers Shortcut: JXM**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-5, Enrichment 2-5**

Solving One-Step Equations with Multiplication and Division (Section 2.6):

Warm-up/Starting Options	**p. 92 Check Skills You'll Need**
Practice and Apply	**p. 94-95 #1-36, 44, 48-50** **IXL PRACTICE:** **Level HZ.9 Solve one-step multiplication and division equations with whole numbers Shortcut: JUA**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-6, Enrichment 2-6**

Inequalities and Their Graphs (Section 2.8):

Warm-up/Starting Options	**p. 102 Check Skills You'll Need**
Practice and Apply	**p. 104-105 #1-32, 34-36** **IXL PRACTICE:** **Level IT.3 Write inequalities from number lines Shortcut: JNL** **Level HAA.2 Graph inequalities on number lines Shortcut: CXX**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-8, Enrichment 2-8**

Solving One-Step Inequalities by Adding or Subtracting (Section 2.9):

Warm-up/Starting Options	**p. 106 Check Skills You'll Need**
Practice and Apply	**p. 108 #1-19, 22-34**

	IXL PRACTICE: **Level DK.5 Solve inequalities using addition and subtraction shortcuts** **Shortcut: 87Q** **Level KK.4 Solve one-step linear inequalities: addition and subtraction** **Shortcut: RZV**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-9, Enrichment 2-9**

Solving One-Step Inequalities by Multiplying or Dividing (Section 2.10):

Warm-up/Starting Options	**p. 110 Check Skills You'll Need**
Practice and Apply	**p. 113-114 #1-39, 50** **IXL PRACTICE:** **Level HAA.5 Solve one-step inequalities Shortcut: KRH** **Level KK.5 Solve one-step linear inequalities: multiplication and division** **Shortcut: BRJ**
Resources	**Pre-Algebra Textbook, Practice Workbook 2-10, Enrichment 2-10**

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Black Horse Pike Regional School District Curriculum

ENGAGING STUDENTS ⚫ FOSTERING ACHIEVEMENT ⚫ CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Introduction to Algebra Foundations

UNIT 4

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<table>
<tr><td>Course/Unit Title:
Introduction to Algebra / Proportions and Percents</td><td rowspan="2">Unit Summary:
In this chapter, students will learn the definitions and uses of ratios, including solving proportions. Students learn that a percent can be written as a ratio in fraction form with 100 as the denominator, and as a decimal. Lastly, students will solve percent problems with proportions and then find percents of change and discounts.</td></tr>
<tr><td>Grade Level(s):
9</td></tr>
<tr><td>Essential Question(s):
• How do you find and use ratios?
• How do you write and solve proportions?
• How do you find and use percentages?
• How do you find percent of change?</td><td>Enduring Understanding(s):
Students will be able to:
• Write and simplify ratios
• Solve proportions
• Use proportions to solve problems
• Write percents as fractions and decimals
• Write decimals and fractions as percents
• Write and solve proportions using percent
• Find percent of change
• Find discounts</td></tr>
</table>

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	NJSLS:
1. Use ratios and proportions. [*Standard*] - Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. [*Standard*] - Represent proportional relationships by equations. [*Standard*] - Use proportional relationships to solve multistep ratio and percent problems.	**1. NJSLS.6.RP.A.1, NJSLS.6.RP.A.2.c, NJSLS.7.RP.A.3**
2. Find percents and percent of change. [*Standard*] - Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. [*Standard*] - Use proportional relationships to solve multistep ratio and percent problems.	**2. NJSLS.6.RP.A.3.c, NJSLS.7.RP.A.3**
3. Calculate simple interest. [*Standard*] - Use proportional relationships to solve multistep ratio and percent problems.	**3. NJSLS.7.RP.A.3**

Interdisciplinary Connections:

Real-World problem solving examples:
Finding unit rate to make the best buy (p. 289), comparing unit rates for speed (p. 290), using proportions to convert from nautical miles to statute miles (p. 295), converting fractions to percents (p. 311), using proportions to find percentage (p. 317), finding percent of change (p. 326), finding markup on an item sold in a music store (p. 329), using simple interest to determine interest earned (p. 382)

Interdisciplinary problem solving examples:
Physics (p. 290), science (p. 291), geometry (p. 297), investing (p. 386)

Students will engage with the following text:

Text:

- *Pre-Algebra,* Prentice Hall Mathematics, 2004
- Algebra 1, A Common Core Curriculum – Big Ideas Math, *Big Ideas Learning LLC., 2019*
- Algebra 1, Fou, *Pearson Education Inc., 2015*

Online Resources incorporated through the year, include but not limited to:

- BigIdeasMath.com – publisher on-line assignments, resources and text
- Desmos – online graphing tool

- IXL – web-based software
- G Suite for education – Google Classroom, Docs, Drive, Mail, etc…

Calculators:

- TI – 84 Plus graphing calculator
- TI – 30 XS MultiView

The following 21st century skills and the 8 mathematical practices are embedded throughout the course and are evident in daily lessons, assignments, activities, assessments and projects:

21st Century skills:	**Mathematical Practices:**
• Critical thinking • Creativity • Collaboration • Communication • Information literacy • Technology literacy • Media literacy • Flexibility • Leadership • Initiative • Productivity • Social skills	• Make sense of problems and persevere in solving them • Reason abstractly and quantitatively • Construct viable arguments and critique the reasoning of others • Model with mathematics • Use appropriate tools strategically • Attend to precision • Look for and make use of structure • Look for and express regularity in repeated reasoning

Students will write:

Writing/Open-Ended Questions:
Equivalent fractions and ratios (p. 290), using ratios to estimate time driven (p. 297), converting decimals to percents (p. 313).

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills?

Students will uncover and build skills through various classroom learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Ratios (Section 6.1):

Warm-up/Starting Options	**p. 288 Check Skills You'll Need**
Practice and Apply	**p. 209 #1-12** **IXL PRACTICE:** **Level IJ.1 Understanding ratios Shortcut: ZTC** **Level HR.5 Identify equivalent ratios Shortcut: 2LM** **Level IJ.2 Identify equivalent ratios Shortcut: ZFM**
Resources	**Pre-Algebra Textbook, Practice Workbook 6-1, Enrichment 6-1**

Proportions (Section 6.2):

Warm-up/Starting Options	**p. 294 Check Skills You'll Need**
Practice and Apply	**p. 296-297 #1-41, 50-51, 54, 55-59** **IXL PRACTICE:** **Level IJ.9 Do the ratios form a proportion? Shortcut: MJQ** **Level IJ.11 Solve proportions Shortcut: TDA** **Level JJ.9 Solve proportions Shortcut: BNY**
Resources	**Pre-Algebra Textbook, Practice Workbook 6-2, Enrichment 6-2**

Similar FIgures and Scale Drawings (Section 6.3):

Warm-up/Starting Options	**p. 299 Check Skills You'll Need**
Practice and Apply	**p. 301 #1-19** **IXL PRACTICE:** **Level IAA.17 Side lengths and angle measures of similar figures Shortcut: JA5** **Level IZ.1 Scale drawings of polygons Shortcut: WEA**

Resources	Pre-Algebra Textbook, Practice Workbook 6-3, Enrichment 6-3

Fractions, Decimals, and Percents (Section 6.5):

Warm-up/Starting Options	p. 310 Check Skills You'll Need
Practice and Apply	p. 312-313 #1-48, 71, 72 IXL PRACTICE: Level GQ.2 Convert between percents, fractions, and decimals Shortcut: 2VM Level HS.4 Convert between percents, fractions, and decimalsShortcut: ZAV Level HS.5 Convert between percents, fractions, and decimals: word problems Shortcut: 7CZ
Resources	Pre-Algebra Textbook, Practice Workbook 6-5, Enrichment 6-5

Proportions and Percents (Section 6.6):

Warm-up/Starting Options	p. 315 Check Skills You'll Need
Practice and Apply	p. 318-319 #3-31, 34 IXL PRACTICE: Level IJ.11 Solve proportions Shortcut: TDA Level JJ.9 Solve proportions Shortcut: BNY Level JJ.10 Solve proportions: word problems Shortcut: 5XV
Resources	Pre-Algebra Textbook, Practice Workbook 6-6, Enrichment 6-6

Percent of Change (Section 6.8):

Warm-up/Starting Options	p. 325 Check Skills You'll Need
Practice and Apply	p. 327-328 #1-30, 32, 39, 40 IXL PRACTICE: Level IL.10 Percent of change Shortcut: BL7 Level JL.10 Percent of change Shortcut: NYH Level KD.4 Percent of change Shortcut: GRG
Resources	Pre-Algebra Textbook, Practice Workbook 6-8, Enrichment 6-8

Discounts (Section 6.9):

Warm-up/Starting Options	**p. 329 Check Skills You'll Need**
Practice and Apply	**p. 331-332 #11-17, 20-23** **IXL PRACTICE:** **Level JM.5 Percent of a number: tax, discount, and more Shortcut: KZZ**
Resources	**Pre-Algebra Textbook, Practice Workbook 6-9, Enrichment 6-9**

Using Customary Units of Measurement (Section 5.5):

Warm-up/Starting Options	**p. 253 Check Skills You'll Need**
Practice and Apply	**p. 255 #1-36**
Resources	**Pre-Algebra Textbook, Practice Workbook 5-5, Enrichment 5-5**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR
UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.
IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student recordkeeping, quizzes, entrance and exit tickets, peer/self-assessments, learning/response logs, discussions and practice presentations.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- Diagnostic Pre-Test
- Chapter Tests
- Periodic Benchmark Tests
- End-Of –Course Assessment
- Standardized Tests

Performance Assessments:

Performance Tasks and Projects

Accommodations/Modifications:

As per IEP.

Revised 08-2022

Black Horse Pike Regional School District Curriculum

ENGAGING STUDENTS ⚫ FOSTERING ACHIEVEMENT ⚫ CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Introduction to Algebra Foundations

UNIT 5

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<table>
<tr><td>Course/Unit Title:
Introduction to Algebra / Solving Equations</td><td rowspan="2">Unit Summary:
In this unit, students will use mathematical properties to solve one and two-step equations, multi-step equations, and equations with variables on both sides. Students will use problem solving strategies to write and solve equations. Lastly, they will use the same mathematical properties and skills to transform formulas.</td></tr>
<tr><td>Grade Level(s):
9</td></tr>
<tr><td>Essential Question(s):
• How do you solve multi step equations?
• How do you use equations to solve word problems?
• How do you transform equations and formulas?</td><td>Enduring Understanding(s):
Students will be able to:
• Solve one-step equations
• Solve two-step equations
• Combine like terms and use the distributive property in equations
• Write an equation to solve a problem
• Solve equations with variables on both sides
• Solve a formula for a given variable
• Use formulas to solve problems</td></tr>
</table>

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	NJSLS:
1. Solve multi-step equations. [*Standard*] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	**1. NJSLS.9-12.A-REI.B.3**
2. Use equations to solve word problems. [*Standard*] - Create equations and inequalities in one variable and use them to solve problems [*Standard*] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	**2. NJSLS.9-12.A-CED.A.1, NJSLS.9-12.A-REI.B.3**
3. Rewrite equations and formulas. [*Standard*] - Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	**3. NJSLS.9-12.A-CED.A.4**

Interdisciplinary Connections:

Real-World problem solving examples:
Writing and solving one-step equations using subtraction (p. 87 and p. 88), writing equations using addition to find the distance from Mars to the Sun (p. 89), writing and solving equations using multiplication to find the population of the United States in a given year (p. 92), using equations to save money for vacation (p. 349), using equations to save money for a camera (p. 350), using equations to compare collectibles (p. 352), using equations to compare cell phone plans (p. 358), using equations to find the cost of hiring a guide (p. 360), using equations to find the cost of shoes (p. 360), using equations to find the cost of a moving van (p. 362), finding sale prices (p. 364), finding the cost of painting (p. 364), using equations to find time when bicycling (p. 368), using equations to compare costs of cell phone plans (p. 369), using equations to find the time a boating trip takes (p. 370)

Interdisciplinary problem solving examples:
Health (p. 87), Statistics (p. 92), construction (p. 350), sports (p. 353), construction (p. 355), art (p. 360), financial planning (p. 364), farming (p. 364), physics (p. 364), aviation (p. 369)

Students will engage with the following text:

Text:

- *Pre-Algebra,* Prentice Hall Mathematics, 2004
- Algebra 1, A Common Core Curriculum – Big Ideas Math, *Big Ideas Learning LLC., 2019*
- Algebra 1, Fou, *Pearson Education Inc., 2015*

Online Resources incorporated through the year, include but not limited to:

- BigIdeasMath.com – publisher on-line assignments, resources and text
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- IXL – web-based software
- G Suite for education – Google Classroom, Docs, Drive, Mail, etc…

Calculators:

- TI – 84 Plus graphing calculator
- TI – 30 XS MultiView

The following 21st century skills and the 8 mathematical practices are embedded throughout the course and are evident in daily lessons, assignments, activities, assessments and projects:

21st Century skills:

- Critical thinking
- Creativity
- Collaboration
- Communication
- Information literacy
- Technology literacy
- Media literacy
- Flexibility
- Leadership
- Initiative
- Productivity
- Social skills

Mathematical Practices:

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning

Students will write:

Writing/Open-Ended Questions:
Explaining inverse operations (p. 90 and 95), compare the processes of solving two different equations (p. 351), explaining how to solve an equation (p. 355), explain how to find a price in an equation (p. 360), describe the steps in solving a multi-step equation (p. 370)

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills?

Students will uncover and build skills through various classroom learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Solving Two-Step Equations (Section 7.1):

Warm-up/Starting Options	**p. 348 check skills you'll need**
Practice and Apply	**p. 350-351 #1-34** **IXL PRACTICE:** **Level IS.7 Solve two-step equations without parentheses Shortcut: CMX** **Level IS.9 Solve two-step equations Shortcut: QEB**
Resources	**Pre-Algebra Textbook, practice workbook 7-1, enrichment 7-1**

Solving Multi-Step Equations (Section 7.2):

Warm-up/Starting Options	**p. 352 check skills you'll need**
Practice and Apply	**p. 355-356 #1-8, 10-23, 26-30, 33, 34** **IXL PRACTICE:** **Level HZ.19 Solve equations involving like terms Shortcut: W82** **Level JY.11 Solve equations involving like terms Shortcut: Q2B** **Level JY.15 Solve multi-step equations Shortcut: 55K**
Resources	**Pre-Algebra Textbook, practice workbook 7-2, enrichment 7-2**

Solving Equations with Variables on Both Sides (Section 7.5):

Warm-up/Starting Options	**p. 367 check skills you'll need**
Practice and Apply	**p. 369-371 #3-23, 26-33** **IXL PRACTICE:** **Level JY.12 Solve equations with variables on both sides Shortcut: ZYL**
Resources	**Pre-Algebra Textbook, practice workbook 7-5, enrichment 7-5**

Solving Two-Step Inequalities (Section 7.6):

Warm-up/Starting Options	**p. 373 check skills you'll need**
Practice and Apply	**p. 375 #1-22** **IXL PRACTICE:** **Level KK.8 Solve two-step linear inequalities Shortcut: NPZ** **Level KK.9 Graph solutions to two-step linear inequalities Shortcut: XVM**
Resources	**Pre-Algebra Textbook, practice workbook 7-6, enrichment 7-6**

Transforming Formulas (Section 7.7):

Warm-up/Starting Options	**p. 378 check skills you'll need**
Practice and Apply	**p. 380 #3-14**
Resources	**Pre-Algebra Textbook, practice workbook 7-7, enrichment 7-7**

PART IV: EVIDENCE OF LEARNING

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Formative Assessments:

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Performance Tasks and Projects

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Revised 08-2022

Black Horse Pike Regional School District Curriculum

ENGAGING STUDENTS ⚫ FOSTERING ACHIEVEMENT ⚫ CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Introduction to Algebra Foundations

UNIT 6

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: **Introduction to Algebra / Graphing Linear Equations and Inequalities** **Grade Level(s):** **9**	**Unit Summary**: In this unit, students identify relations and functions, and then graph linear equations, learning that nonvertical lines represent linear functions. Students will find the slope of a line and graph lines by using the slope and y-intercept. Lastly, students will learn to graph linear inequalities.
Essential Question(s): • **How do you determine whether a relation is a function?** • **How do you graph linear equations?** • **How do you graph linear inequalities?**	**Enduring Understanding(s):** Students will be able to: • Determine whether a relation is a function • Graph relations and functions • Find solutions of linear equations • Find the slope of a line • Use slope-intercept form to graph a linear equation • Graph linear inequalities

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	NJSLS:
1. Determine whether a relation is a function. [*Standard*] - Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	**1. NJSLS.8.F.A.1**
2. Solve and graph linear equations. [*Standard*] - Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. [*Standard*] - Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x). [*Standard*] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	**2. NJSLS.8.F.B.4, NJSLS.9-12.F-IF.A.1, NJSLS.9-12.A-CED.A.2**
3. Graph linear inequalities. [*Standard*] - Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	**3. NJSLS.9-12.A-REI.D.12**

Interdisciplinary Connections:

Real-World problem solving examples:
Using functions to evaluate cooking time (p. 401), using functions rules to determine calories burned while swimming (p. 408), using slope to determine a safe ramp height (p. 413), using linear inequalities to determine ticket sales needed to earn a profit (p. 443), use linear inequalities to determine income (p. 445)

Interdisciplinary problem solving examples:
Banking (p. 404), meteorology (p. 405), language arts (p. 409), architecture (p. 414), construction (p. 415)

Students will engage with the following text:

Text:

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- Algebra 1, A Common Core Curriculum – Big Ideas Math, *Big Ideas Learning LLC., 2019*
- Algebra 1, Fou, *Pearson Education Inc., 2015*

Online Resources incorporated through the year, include but not limited to:

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• Critical thinking • Creativity • Collaboration • Communication • Information literacy • Technology literacy • Media literacy • Flexibility • Leadership • Initiative • Productivity • Social skills	• Make sense of problems and persevere in solving them • Reason abstractly and quantitatively • Construct viable arguments and critique the reasoning of others • Model with mathematics • Use appropriate tools strategically • Attend to precision • Look for and make use of structure • Look for and express regularity in repeated reasoning

Students will write:

Writing/Open-Ended Questions:
Compare and contrast relations and functions (p. 404), explain how to determine solutions of a linear function (p. 408), explain the relationship between lines (p. 415), determine the difference between two linear inequalities (p. 444), compare and contrast linear inequalities with one variable inequalities (p. 445)

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills?

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Suggested warm-up activities, instructional strategies/activities, and assignments:

Relations and Functions (Section 8.1):

Warm-up/Starting Options	**p. 400 check skills you'll need**
Practice and Apply	**p. 403-404 #1-5, 11-22, 23** **IXL PRACTICE:** **Level JBB.1 Identify functions Shortcut: ELJ** **Level JBB.2 Identify functions: graphs Shortcut: AEB**
Resources	**Pre-Algebra Textbook, practice workbook 8-1, enrichment 8-1**

Equations with Two-Variables (Section 8.2):

Warm-up/Starting Options	**p. 405 check skills you'll need**
Practice and Apply	**p. 408-409 #1-11, 18-20, 21-26, 28-34, 35-37**
Resources	**Pre-Algebra Textbook, practice workbook 8-2, enrichment 8-2**

Slope and y-intercept (Section 8.3):

Warm-up/Starting Options	**p. 411 check skills you'll need**
Practice and Apply	**p. 414-416 #1-21, 23-24, 30-38** **IXL PRACTICE:** **Level JAA.4 Slope-intercept form: find the slope and y-intercept Shortcut: U55** **Level KT.6 Slope-intercept form: find the slope and y-intercept Shortcut: R5T**
Resources	**Pre-Algebra Textbook, practice workbook 8-3, enrichment 8-3**

Writing Rules for Linear Functions (Section 8.4):

Warm-up/Starting Options	**p. 418 check skills you'll need**
Practice and Apply	**p. 420-421 #1-3, 7-8, 13-25, 26** **IXL PRACTICE:** **Level DL.7 Write the addition or subtraction rule for an input/output table - up to 20 Shortcut: CPP** **Level KQ.13 Complete a function table from an equation Shortcut: Z73**
Resources	**Pre-Algebra Textbook, practice workbook 8-4, enrichment 8-4**

Scatter Plots (Section 8.5):

Warm-up/Starting Options	**p. 423 check skills you'll need**
Practice and Apply	**p. 426-427 #1-25** **IXL PRACTICE:** **Level KMM.8 Interpret a scatter plot Shortcut: 8BS** **Level ICC.17 Identify trends with scatter plots Shortcut: 7T5** **Level JEE.16 Create scatter plots Shortcut: AVL**
Resources	**Pre-Algebra Textbook, practice workbook 8-5, enrichment 8-5**

Solving by Graphing (Section 8.6):

Warm-up/Starting Options	**p. 430 check skills you'll need**
Practice and Apply	**p. 432 #1-6** **IXL PRACTICE:** **Level JCC.2 Solve a system of equations by graphing Shortcut: WV5** **Level KV.2 Solve a system of equations by graphing Shortcut: TSS**
Resources	**Pre-Algebra Textbook, practice workbook 8-6, enrichment 8-6**

Solving Systems of Linear Equations (Section 8.7):

Warm-up/Starting Options	**p. 435 check skills you'll need**
Practice and Apply	**p. 438 #1-25; Kuta worksheets for each type Substitution, Elimination and Graphing** **IXL PRACTICE:** **Level JCC.8 Solve a system of equations using substitution Shortcut: J8X** **Level JCC.10 Solve a system of equations using elimination Shortcut: ZQV**
Resources	**Pre-Algebra Textbook, practice workbook 8-7, enrichment 8-7**

Graphing Linear Inequalities (Section 8.8):

Warm-up/Starting Options	**p. 441 check skills you'll need**
Practice and Apply	**p. 444 #1-29** **IXL PRACTICE:** **Level KU.4 Write a linear inequality from a graph Shortcut: N9W** **Level MC.8 Graph a two-variable linear inequality Shortcut: RWU**
Resources	**Pre-Algebra Textbook, practice workbook 8-8, enrichment 8-8**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

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- Standardized Tests

Performance Assessments:

Performance Tasks and Projects

Accommodations/Modifications:

As per IEP.