

FARMINGDALE UFSD						
Grade 9 Algebra Curriculum - Scope and Sequence September 2007						Sept. 2007
Director: Gerardine M. Johnson-Carpenter, Ed.D.						
Textbook: AMSCO: Integrated Mathematics Course 1 2nd Edition, 1989						
DATE	LESSON	PI	Amsco	Glencoe	Holt	McDougal
UNIT I: PRE-ALGEBRA REVIEW, SETS, AND NUMBER THEORY - 7 days						
	1. Pre-algebra Review (number systems, rational & irrational #s, signed #s, order of operations and absolute value)		201-202	11-12;14: 68-87;104	34-36	2-13; 64-70; 73-79; 80-93; 103-108; 111-114; 390-394
	2. What is a set?	A.N.6	39-44	16-20	746-749	71-72; 930
	3. How do we perform operations on sets? (include venn diagrams)	A.A.30	44-48		746-749	71-72; 930
	4. What are the properties of real numbers?	A.N.1	645-647	21-36; 58-60	15; 21; 46-51; 79; 86; S80	75-79; 89-91; 96-101; 954
	5. What is Scientific Notation and how do we use it to compute products and quotients of numbers?	A.N.4	249-253	425-430	452-475	512-519
	6. Review					
	7. Test					
Unit II: OPERATIONS WITH MONOMIALS AND POLYNOMIALS - 10 days						
	1. How do we add and subtract monomials?	A.A.13	232-237	436; 593	47-51; 52-53; 476-483; 484-491	554-559

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	2. How do we add and subtract polynomials?	A.A.13	256-264	437-441	484-491; 52-53	554-559
	3. How do we multiply monomials? (include review of multiplying powers of the same base.)	A.A.12	238-242	410-414	492-499	562-568
	4. How do we multiply a polynomial by a monomial?	A.A.13	264-267	444-447	492-499	562-568
	5. How do we multiply polynomials? (binomials and binomial with a polynomial.)	A.A.13	267-270	450-463	501-507	562-568; 569-574
	6. How do we divide monomials? (include review of dividing powers of the same base.)	A.A.14	243-246	417-423; 465	893-899	495-502; 784-785
	7. How do we divide a polynomial by a monomial? (with no remainder)	A.A.14	270-272	666-669	893-899	784-785
	8. How do we divide a polynomial by a binomial? (with no remainder)	A.A.14	272-274	667-669	893-899	784-785
	9. Review					
	10. Test					
	Unit III: ALGEBRAIC SOLUTIONS TO LINEAR EQUATIONS AND INEQUALITIES					
	-13 days					
	1. How do we solve and check one step equations?	A.A.21 A.A.22	227-230	127-140	76-82; 84-90	134-140
	2. How do we solve and check two step equations?	A.A.21 A.A.22	276-279	141-148	92-98	141-146; 148-153
	3. How do we solve and check equations with variables on both sides and with parentheses?	A.A.21 A.A.22	279-285	149-154	92-98; 99-106; 900-905	148-159
	4. How do we solve proportions and word problems with percents?	A.A.26 A.N.5	380; 386-389	155-165	114-120; 127-132	162-173; 176-183
	5. How do we solve literal equations?	A.A.23	293-295	166-170	107-111	184-189
	6. How do we translate verbal phrases into algebraic expressions and verbal problems into equations and distinguish the difference between them?	A.A.1 - A.A.4	68-74; 106-109; 278	6-10; 120-126	6-11; 81	15-20

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	7. How do we analyze and solve verbal mathematic equations in one variable?	A.A.5 A.A.6	109-111; 11;,278; 280-282; 284	145-147	81; 88; 90; 76-111	134-173; 176-189	
	8. More on solving verbal problems (include linear consecutive integers)	A.A.5 A.A.6	285-288	144-147; 153; 551	97	158	
	9. How do we solve linear verbal problems with perimeter and area?	A.A.5 A.A.6	290-293		52-53	138; 151; 158; 161; 181	
	10. How do we solve linear inequalities in one variable?	A.A.21 A.A.24	300-304	318-337	168-200	21-26; 356-374; 380-387	
	11. How do we analyze and solve verbal problems whose solution involves solving a linear inequality?	A.A.6	304-308	320-337; 342	168-200	356-374	
	12. Review						
	13. Test						
	UNIT IV: Graphing linear equations and inequalities - 10 days						
	1. What is slope and how do we compute it given the coordinates of two points? (explain slope as a rate of change between dependent and independent variables)	A.A.32 A.A.33	587-593	256-262	310-319; 320--325; Z 7-8	206-207; 235-243; 921	
	2. What is the slope-intercept equation of a line and how do we use it to graph the line?	A.G.4	596-601	271-277	54-59; 296-302; 303-308; 334-340	215-221; 225-232; 244-252	
	3. What is direct variation and how do we graph solutions to real life problems?	A.N.5	593-596	264-270	326-331	253-259	
	4. How do we graph linear inequalities?	A.G.6	603-607	355-358	414-420	405-412	
	5. How do we write the equation of a line given its slope and the coordinates of a point on the line?	A.A.34	601-603	280-285	303-308; 326-331	244-250; 283-299	
	6. How do we write the equation of a line given the coordinates of two points on the line?	A.A.35	601-603	281-285	341-348	283-299; 302-308; 311-316	

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	7. How do we write the equations and graph lines parallel to the x-axis and y-axis and determine the slope of a line given its equation in any form?	A.A.36 A.A.39	586-587; 585	257; 292-297	349-352	319-324
	8. How do we determine if two lines are parallel given their equation in any form and how do we determine whether a given point is on a line given its equation?	A.A.38 A.A.39	578-581; 584	292-297	349-356; 357-363	319-324
	9. Review					
	10. Test					
	UNIT V: Systems of linear equations and inequalities - 11 days					
	1. How do we solve systems of linear equations graphically?	A.G.7	615-620	369-375	383-389	426-434
	2. How do we solve systems of equations with rational coefficients graphically?	A.G.7	619	369-375	383-389	426-434
	3. How do we solve systems of equations algebraically by addition and/or subtraction?	A.A.10	620-625	382-386	397-405	443-450
	4. How do we solve systems of equations algebraically with multiplication?	A.A.10	620-625	387-392	397-405	451-457
	5. More on solving systems of equations algebraically with multiplication	A.A.10		387-392	397-405	451-457
	6. How do we solve systems of equations algebraically with substitution?	A.A.10	625-627	376-381	390-396	435-441
	7. How do we analyze and solve verbal problems whose solution requires solving systems of linear equations in two variables?	A.A.7	628-632	371	406-411	429-430; 432-433; 437-438; 446; 449; 453; 456
	8. How do we solve systems of inequalities and determine whether a given point is in the solution set?	A.G.7 A.A.40	632-635	394-399	414-420; 421-427	405-412; 466-472
	9. More on solving system of inequalities	A.G.7 A.A.40		394-399	414-420; 421-427	405-412; 466-472
	10. Review					
	11. Test					
	UNIT VI: OPERATIONS WITH RADICALS - 6 days					

DATE	LESSON	PI	Amsco	Glencoe	Holt	McDougal
	1. How do we simplify radicals? (No variables in radicand. Include determining rational or irrational.)	A.N.2	643-644; 658-660	586-587; 590	805-810	64-70; 110-114; 718-724
	2. How do we add and subtract radicals? (Use like and unlike radical terms.)	A.N.3	660-662	593-595	811-815	718-724
	3. How do we multiply and divide radicals?	A.N.3	662-666	587-588; 594-595; 597	816-821	718-724
	4. Mixed review with radicals			586-597	805-821	718-724
	5. Review					
	6. Test					
	UNIT VII: FACTORING - 7 days					
	1. How do we factor a greatest common monomial factor from a polynomial?		414-416	476-484	524-529; 531-537; Z 19-22	575-579; 910-911
	2. How do we factor the difference of two perfect squares? (Include some binomials that need to have a GCF factored out first.)	A.A.19	418-420	501-506	558-564	600-605
	3. How do we factor a trinomial in the form $ax^2 + bx + c$ when $a = 1$? (Include some trinomials that need to have a GCF factored out first.)	A.A.20	423-427	487-494	538-547	583-589
	4. How do we factor a trinomial in the form $ax^2 + bx + c$ where $a \neq 1$? (Include some trinomials that need to have a GCF factored out first.)	A.A.20	423-427	495-500	548-555	593-599
	5. Practice all types of factoring and emphasize factoring completely.	A.A.20	427-428	508-579	524-564; 560-571	575-605; 606-613
	6. Review					
	7. Test					
	UNIT VIII: QUADRATIC EQUATIONS - 11 days					

DATE	LESSON	PI	Amsco	Glencoe	Holt	McDougal
	1. How do we solve a quadratic equation with integral coefficients and integral roots by factoring? (Include differentiating between factors of a quadratic expression and roots of a quadratic equation.)	A.A.27 A.A.28	680-685	546-552	599-600; 622-627; 636-641	575-579; 643-649
	2. Practice solving quadratic equations. (Include solving proportions that result in solving a quadratic equation.)	A.A.26		546-552	622-627; 902-904	575-579; 643-649
	3. How do we graph a quadratic equation (a parabola)?	A.G.4	702-704	524-530	590-597; 606-611	628-642
	4. Practice graphing parabolas.	A.G.4		524-530	590-597; 606-611	628-642
	5. How does changing aspects of the quadratic equation affect it's graph? (i.e.: change in the equations coefficients.)	A.G.5		531-532; 545	612-619	628-634
	6. How do we determine the vertex and axis of symmetry of a parabola graphically?	A.G.10		524-530	598-605; 606-611	635-640
	7. How do we determine the vertex and axis of symmetry of a parabola algebraically?	A.A.41		524-530	598-605; 606-611	635-640
	8. How do we find the roots of a quadratic equation graphically? (Only quadratic equations with integral solutions.)	A.G.8		533-538	622-629; 630-635	643-651
	9. Practice finding roots of quadratic equations graphically.			533-538	599-605; 622-629; 630-635	643-651
	10. Review					
	11. Test					
	UNIT IX: QUADRATIC APPLICATIONS - 7 days					
	1. How do we solve verbal problems that result in quadratic equations?	A.A.8	697-702	529; 536-537	599-619	631-634; 637-640; 646; 648
	2. More on solving verbal quadratic equations. (Include area, consecutive integers, etc.)	A.A.8		529; 536-537; 551	632; 634- 635; 638; 640	585; 587; 589; 675

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	3. How do we solve a quadratic/linear system of equations graphically?	A.G.9		553	590-597; 606-611; 296- 302; 383-413	628-642
	4. How do we solve a quadratic/linear system of equations algebraically?	A.A.11			383-413; 599-600; 622-627; 636-641	575-579; 643-649
	5. Practice solving quadratic/linear system of equations algebraically	A.A.11			383-413; 599-600; 622-627; 636-641	575-579; 643-649
	6. Review					
	7. Test					
	UNIT X: FUNCTIONS - 9 days					
	1. What is a function? (Define relation, function, and include determining functions by examining ordered pairs and inspecting graphs of relations.)	A.G.3		43; 61; 204; 226- 231; 249; 436; 830	236-243; 245-251	35-40; 43-50; 262-268
	2. What are the different types of functions? (Identify and graph: linear, quadratic/parabola, absolute value and exponential.)	A.G.3		43-48; 218-225; 226-232; 279; 524-530; 554-560	252-259; 296-302; 366-367; 590-597; 789-792	262-268; 396-397; 520 538; 628-651; 669 670; 684-692
	3. Continue with identifying and graphing functions. (Concentrate on graphing exponential functions.)	A.G.4		226-231; 554-560	772-779; 789-795	520-530
	4. How does the change in the coefficients of a function change its graph? (Include: linear, quadratic, absolute value, and exponential.)	A.G.5		278-279; 531-532; 554-560	356-363; 366- 367; 613-619; 772-779; 789-795	262-268; 396-397; 520-530; 531; 628-634
	5. How do we identify and solve growth and decay verbal problems?	A.A.9		561-566	781-788	520-538
	6. More on growth and decay verbal problems.	A.A.9		561-566	781-788	520-538

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	7. Practice growth and decay verbal problems.	A.A.9		561-566	781-788	520-538
	8. Review					
	9. Test					
	UNIT XI: ALGEBRAIC FRACTIONS - 10 days					
	1. How do we determine when a fraction is undefined (finding the excluded value)? (Include quadratic denominators.)	A.A.15	430-431	648-651	858-865	794-800
	2. How do we simplify algebraic fractions? (Include fractions with polynomials in both numerator and denominator.)	A.A.16	431-435	651-653; 665	866-873; Z 23-27	794-800; 912-913
	3. How do we multiply algebraic fractions?	A.A.18	435-438	655-659	878-884; Z 32-33	802-809; 915
	4. How do we divide algebraic fractions?	A.A.18	438-440	660-664	878-884; Z 32-33	802-809; 915
	5. How do we add and subtract algebraic fractions with like denominators? (Include fractions with polynomial denominators.)	A.A.17	440-442	672-677	885-886; Z 28-31	812-819; 914
	6. How do we add and subtract algebraic fractions with unlike denominators? (Monomial denominators only.)	A.A.17	443-448	678-683	886- 891; Z 28- 31	812-819; 914
	7. How do we solve equations containing fractional coefficients?	A.A.25	448-454	690-694	900-905	820-826
	8. How do we solve fractional equations?	A.A.25 A.A.26	458-461	690-694	900-905	820-826
	9. Review					
	10. Test					
	UNIT XII: PYTHAGOREAN THEOREM AND RIGHT TRIANGLE TRIGONOMETRY - 8 days					
	1. How do we find the third side of a right triangle using the Pythagorean theorem? (Include irrational lengths and verbal problems.)	A.A.45	691-697	605-610	S 71; 641; 807-808	736-742
	2. What is right triangle trigonometry? (Include finding Sine, Cosine, and Tangent ratios given sides of a right triangle.)	A.A.42		623-624	908-911	
	3. How do we use trigonometry to find a side of a right triangle given an angle and a side of the triangle?	A.A.44		625	908-911	

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	1. What is probability and how do we calculate the probability of a single event and its complement? (Include definitions, tree diagrams, And/or, and Empirical vs Theoretical probabilities)	A.S.19 A.S.20	465-486	96-101; 113-114; 422; 436; 754-758; 782-788; 792; 852	712-725	843-847; 931	
	2. What are factorials, permutations, and the counting principle?	A.N.6 A.N.7 A.N.8	499-503; 513-519	755-758; 760-767; 790-791	736-743	851-855; 931	
	3. How do we determine empirical probabilities based on specific sample data? (Determine, based on calculated probability of a set of events if: some or all are likely to occur, one is more likely to occur than the other, and whether or not an event is certain to happen or not to happen.)	A.S.21	465-469	97-98; 114; 782-784; 792; 852	713-719		
	4. How do we determine the probability of mutually exclusive events and events that are not mutually exclusive?	A.S.22 A.S.23		771-772; 790	734-735	861-867	
	5. What is conditional probability and how do we use it to solve for probabilities in finite sample spaces?	A.S.18			S 77		
	6. More on conditional probability.				S 77		
	7. How do we calculate the probability of independent and dependent events?	A.S.22		769-776; 790	726-733	843-848; 861-867	
	8. More on independent and dependent events.			769-776; 790	726-733	843-848; 861-867	
	9. Review						
	10. Test						
	UNIT XV: STATISTICS -12 days						
	1. What is statistics? (Include collecting, organizing, and grouping data. Categorize data as qualitative or quantitative. determine if univariate or bivariate. and determine if biased or unbiased.)	A.S.1 A.S.2 A.S.3	529-537	708-712	676-686; 925-932	871-874; 933-935	
	2. What are the measures of central tendency? (include determining for grouped data and comparisons of appropriateness.)	A.S.4	548-564	818-819	694-699	875-878	
	3. How do we construct and interpret a histogram?	A.S.5 A.S.9	544-548	722-728	687-693	881-886	

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	4. How do we construct and interpret a cumulative frequency histogram?	A.S.5 A.S.9	564-572		689-693	
	5. What are percentiles and quartiles? (Include finding percentile rank and identify point values for first, second, and third quartiles.)	A.S.11	566-572	732-736; 743	695-701; 933-935	
	6. How do we construct and interpret Box and Whisker plots? (Include minimum, maximum, and the three quartiles.)	A.S.6 A.S.9		737-742; 748	695-701	887-893
	7. How do we create a scatter plot of bivariate data? (Include identifying the relationship between independent and dependent variables: positive, negative, or none.)	A.S.7 A.S.12		298-307; 312	262-271	42; 325-342
	8. How do we determine the equation of the line of best fit for a given data? (Include causation/correlation.)	A.S.8 A.S.13 A.S.14		298-300; 304; 306-307; 312; 857	262-271	325-341
	9. More on line of best fit and How do we make a prediction involving interpolation or extrapolation?	A.S.13 A.S.14 A.S.17			262-271	332-333; 335-342
	10. How do we evaluate published reports and graphs based on data by considering: experimental design, appropriateness of the data analysis, and the soundness of the conclusions?	A.S.10 A.S.15			702-709	
	11. Review					
	12. Test					
	UNIT XVI: MEASUREMENT - 5 DAYS					
	1. How do we convert to equivalent measurements within measurement systems?	A.M.2			S 53-54	929; 956
	2. How do we calculate rates using appropriate units? (Include motion problems.)	A.M.1			S 53-54	929; 956
	3. How do we calculate the relative error in measuring square and cubic units when there is an error in the linear measure?	A.M.3			S 53-54; S 69	
	4. Review					
	5. Test					
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	Amsco Text: Integrated Mathematics Course I						
	Glencoe: Glencoe Mathematics NY: Algebra						
	Holt: Holt NY: Algebra 1						
	McDougal: McDougal Litell: Algebra 1						