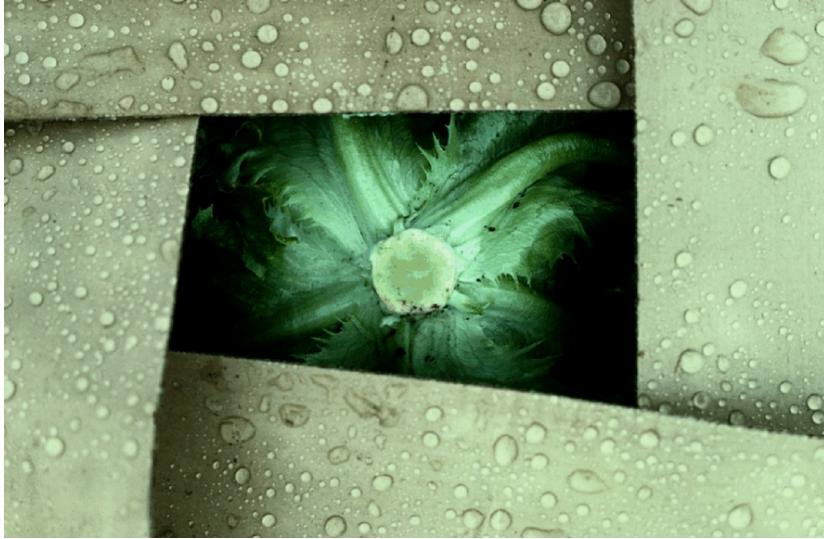


**COURSE: Math 8**  
**GRADE LEVEL: 8th**



MAIN/GENERAL TOPIC	SUB-TOPIC:	ESSENTIAL QUESTIONS :	WHAT THE STUDENTS WILL KNOW:	WHAT THE STUDENT WILL BE ABLE TO DO:	ASSESSMENTS:	WHEN STUDENT DOES IT:
PRETEST- INVENTORY OF SKILLS	COMPUTATION CONCEPTS PROBLEM SOLVING	<p>HOW GOOD ARE YOUR MATH SKILLS ?</p> <p>HOW MUCH MATH DO YOU REMEMBER FROM LAST YEAR ?</p> <p>CAN YOU SOLVE PROBLEMS USING YOUR MATH SKILLS AND KNOWLEDGE ?</p>	<p>STUDENTS WILL KNOW :</p> <ul style="list-style-type: none"> <li>-BASIC MATH OPERATION SKILL LEVELS</li> <li>-LEVEL OF KNOWLEDGE RETENTION</li> <li>-LEVEL OF PROBLEM SOLVING SKILL</li> </ul>	<ul style="list-style-type: none"> <li>-PERFORM BASIC MATH OPERATIONS</li> <li>-IDENTIFY MATH CONCEPTS</li> <li>-SOLVE BASIC MATH PROBLEMS</li> </ul>	PRETEST/ INVENTORY OF SKILLS	SEPTEMBER: FIRST FEW DAYS OF CLASS

<p><b>NUMBER SENSE AND OPERATIONS INCLUDING ESTIMATION</b></p>	<p><b>-PERFORM OPERATIONS ON WHOLE NUMBERS, DECIMALS, FRACTIONS, AND RATIONAL NUMBERS</b>  <b>-DEVELOP AND APPLY THE LAWS OF EXPONENTS</b>  <b>-READ, WRITE, &amp; IDENTIFY PERCENTS LESS THAN 1% AND GREATER THAN 100%</b>  <b>-APPLY PERCENTS</b>  <b>-ESTIMATE A PERCENT</b>  <b>-JUSTIFY THE REASONABLENESS OF ANSWERS</b></p>	<p><b>-CAN YOU ADD, SUBTRACT, MULTIPLY, AND DIVIDE WITH WHOLE NUMBERS, DECIMALS, FRACTIONS, AND RATIONAL NUMBERS ?</b>  <b>-CAN YOU MULTIPLY AND DIVIDE WITH POWERS OF NUMBERS ? CAN YOU EVALUATE EXPRESSIONS CONTAINING POWERS OF NUMBERS ?</b>  <b>-CAN YOU READ , WRITE, AND IDENTIFY PERCENTS INCLUDING PERCENTS LESS THAN 1% AND GREATER THAN 100% ?</b>  <b>-CAN YOU APPLY PERCENTS TO SOLVE PROBLEMS INVOLVING : TAXES, PERCENT OF DECREASE/ INCREASE, SIMPLE INTEREST, SALE PRICE, COMMISSION, INTEREST RATES, AND GRATUITIES ?</b>  <b>-CAN YOU ESTIMATE THE PERCENT OF A NUMBER ?</b>  <b>-CAN YOU JUSTIFY THE REASONABLENESS OF YOUR ANSWER ?</b></p>	<p><b>VOCABULARY:</b>  <b>COMMISSION, EVALUATE, EXPENSES, GRATUITY, GREATEST COMMON FACTOR, INCOME, INTEGRAL EXPONENTS, INTEREST RATES, LAWS OF EXPONENTS, PERCENT, PERCENT OF DECREASE OR INCREASE, PERCENT OF A QUANTITY, PROFIT, SALE PRICE, SALES, SIMPLE INTEREST, TAX, JUSTIFY, PARTS OF COMPUTATIONAL PROBLEMS (+,-, x,))</b>  <b>PROCEDURES:</b>  <b>COMPUTATION AND ESTIMATION WITH VARIOUS TYPES OF NUMBERS SOLVING COMMON TYPES OF PROBLEMS</b></p>	<p><b>UNDERSTAND NUMBERS, MULTIPLE WAYS OF REPRESENTING NUMBERS, RELATIONSHIPS AMONG NUMBERS AND NUMBER SYSTEMS;</b>  <b>UNDERSTAND MEANINGS OF OPERATIONS AND PROCEDURES, AND HOW THEY RELATE TO ONE ANOTHER;</b>  <b>COMPUTE ACCURATELY AND MAKE REASONABLE ESTIMATES</b></p>	<p><b>QUIZZES, TESTS, PROJECTS, JOURNAL ENTRIES</b></p>	<p><b>SEPTEMBER AND OCTOBER</b></p>
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<p>ALGEBRA-VARIABLES AND EXPRESSIONS, EQUATIONS AND INEQUALITIES</p>	<p>-TRANSLATE VERBAL SENTENCES INTO ALGEBRAIC EXPRESSIONS          -WRITE VERBAL EXPRESSIONS THAT MATCH GIVEN EXPRESSIONS          -DESCRIBE A SITUATION INVOLVING RELATIONSHIPS THAT MATCHES A GIVEN GRAPH          -CREATE A GRAPH GIVEN A DESCRIPTION OR AN EXPRESSION FOR A LINEAR OR NONLINEAR RELATIONSHIP          -USE PHYSICAL MODELS TO PERFORM OPERATIONS WITH POLYNOMIALS          -MULTIPLY AND DIVIDE MONOMIALS          -ADD AND SUBTRACT POLYNOMIALS          -MULTIPLY A BINOMIAL BY A MONOMIAL OR BINOMIAL          -DIVIDE A POLYNOMIAL BY A MONOMIAL          -FACTOR ALGEBRAIC</p>	<p>CAN YOU TRANSLATE VERBAL EXPRESSIONS INTO ALGEBRAIC EXPRESSIONS ?          CAN YOU TRANSLATE ALGEBRAIC EXPRESSION INTO WORDS TO MAKE WORD PROBLEMS ?          CAN YOU DESCRIBE A SITUATION, IN YOUR OWN WORDS, THAT MATCHES A GIVEN GRAPH ?          CAN YOU CREATE A GRAPH IF GIVEN A LINEAR OR NONLINEAR RELATIONSHIP?          CAN YOU DEMONSTRATE USING PHYSICAL MODELS HOW TO PERFORM OPERATIONS WITH POLYNOMIALS ?          CAN YOU MULTIPLY, DIVIDE, ADD, AND SUBTRACT WITH POLYNOMIALS AND MONOMIALS ?          CAN YOU FACTOR MONOMIALS, POLYNOMIALS, AND TRINOMIALS ?</p>	<p>VOCABULARY:          ALGEBRAIC EXPRESSION, ALGEBRAIC INEQUALITIES, ALGEBRAICALLY, ARITHMETICALLY, BINOMIAL, COMBINE LIKE TERMS, DEGREE OF A POLYNOMIAL, DOMAIN, FACTOR, FUNCTION NOTATION, FUNCTION RULE, GRAPHICALLY, INTEGER COEFFICIENTS, LINE, LINEAR INEQUALITIES, LINEAR RELATIONSHIP, MONOMIAL, NONLINEAR RELATIONSHIP, NUMERICALLY, OPERATIONS WITH POLYNOMIALS, ORDERED PAIR, POLYNOMIAL, QUADRATIC EQUATION, QUADRATICS, RANGE, RELATION, SIMPLIFY EXPRESSIONS, SOLUTION SET OF AN EQUATION OR INEQUALITY, TRINOMIAL, VERBAL EXPRESSION, VERBAL FORM, VERBAL SENTENCE, WRITTEN SYMBOLS          PROCEDURES:          TRANSLATING, GRAPHING, COMPUTING, AND FACTORING          PROBLEM SOLVING IN A VARIETY OF SITUATIONS</p> <p>02/02/063</p>	<p>STUDENTS WILL:          REPRESENT AND ANALYSE ALGEBRAICALLY A WIDE VARIETY OF PROBLEM SOLVING SITUATIONS;          PERFORM ALGEBRAIC PROCEDURES ACCURATELY;          RECOGNIZE, USE, AND REPRESENT ALGEBRAIC PATTERNS, RELATIONS, AND FUNCTIONS</p>	<p>QUIZZES, TESTS, PROJECTS, JOURNAL ENTRIES</p>	<p>NOVEMBER AND DECEMBER</p>
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<p><b>GEOMETRY- RELATIONSHIPS, COORDINATE GEOMETRY, TRANSFORMATIONAL GEOMETRY, AND CONSTRUCTIONS</b></p>	<p>-IDENTIFY PAIRS OF ANGLES AS BEING CONGRUENT -CALCULATE A MISSING ANGLE -DETERMINE THE RELATIONSHIP OF ANGLE PAIRS INVOLVING PARALLEL LINES -CALCULATE ANGLE MEASURES USING ANGLE RELATIONSHIPS -DESCRIBE AND IDENTIFY TRANSFORMATIONS IN THE PLANE USING PROPER FUNCTION NOTATION -DRAW IMAGES OF A FIGURE UNDER ROTATIONS, REFLECTIONS, TRANSLATIONS AND DILATIONS -IDENTIFY THE PROPERTIES PRESERVED AND NOT PRESERVED UNDER TRANSFORMATIONS -DETERMINE THE SLOPE AND Y INTERCEPT OF A LINE AND EXPLAIN ITS MEANING</p>	<p>CAN YOU IDENTIFY PAIRS OF VERTICAL ANGLES, SUPPLEMENTARY ANGLES, COMPLEMENTARY ANGLES, ANGLES FORMED BY TRANSVERSALS INTERSECTING PARALLEL LINES ? CAN YOU FIND THE MEASURES OF MISSING ANGLES FORMED BY TRANSVERSALS AND PARALLEL LINES ? CAN YOU DESCRIBE AND IDENTIFY THE TYPES OF TRANSFORMATIONS ? CAN YOU DRAW THE IMAGE OF A FIGURE AFTER IT HAS BEEN TRANSFORMED IN THE PLANE ? DO YOU KNOW WHICH PROPERTIES ARE PRESERVED AFTER A TRANSFORMATION IS MADE TO THE IMAGE ? CAN YOU DETERMINE THE SLOPE AND Y INTERCEPT OF A LINE DRAWN ON THE COORDINATE PLANE USING ITS GRAPH ? CAN YOU GRAPH A LINE USING A TABLE OF VALUES OR THE SLOPE &amp; Y INTERCEPT METHODS ? CAN YOU WRITE THE EQUATION FOR A LINE USING ITS GRAPH ? CAN YOU SOLVE A SYSTEM OF EQUATIONS TO FIND THE POINT OF INTERSECTION ? CAN YOU TELL THE DIFFERENCE BETWEEN LINEAR AND NONLINEAR EQUATIONS ? DO YOU RECOGNIZE THE CHARACTERISTICS OF QUADRATICS IN TABLES, GRAPHS, EQUATIONS, AND</p>	<p><b>VOCABULARY:</b> ALTERNATE INTERIOR AND EXTERIOR ANGLES, ANGLE BISECTOR, ANGLE PAIRS, BISECTOR, COMPASS, COMPLEMENTARY ANGLES, CONGRUENT, CONSTRUCTION, CORRESPONDING ANGLES, DILATE, DILATION, EQUATION OF A LINE, EQUIDISTANT, EXTERIOR ANGLE, FIXED DISTANCE, FORMALLY, IMAGE, INFORMALLY, INTERIOR ANGLE, LINE, LINE SYMMETRY, LINEAR EQUATION, NONLINEAR EQUATION, NOT PRESERVED, PARALLEL LINES, PERPENDICULAR BISECTOR, PRE-IMAGE, PRESERVED, RATE OF CHANGE, REFLECT, REFLECTION, ROTATE, ROTATION, ROTATIONAL SYMMETRY, SEGMENT BISECTOR, SLOPE, SLOPE-INTERCEPT FORM, SPATIAL REASONING, STRAIGHT EDGE, SUPPLEMENTARY ANGLES, SYMMETRY, SYSTEM OF EQUATIONS, SYSTEM OF INEQUALITIES, TRANSFORMATION, TRANSFORMATIONAL GEOMETRY, TRANSLATE, TRANSLATION, TRANSVERSAL, VERTICAL, VERTICAL ANGLES, VERTICAL LINE TEST, VERTICAL LINES, VISUALIZATION, Y-INTERCEPT <b>PROCEDURES:</b> DRAW PLANES CONSTRUCT TABLES, GRAPHS, AND LABEL PROPERLY DRAW CONSTRUCTIONS WITH COMPASS AND STRAIGHT EDGE</p> <p>02/02/064</p>	<p><b>STUDENTS WILL:</b> -USE VISUALIZATION AND SPATIAL REASONING TO ANALYZE CHARACTERISTICS AND PROPERTIES OF GEOMETRIC SHAPES; -IDENTIFY AND JUSTIFY GEOMETRIC RELATIONSHIPS, FORMALLY AND INFORMALLY; -APPLY TRANSFORMATIONS AND SYMMETRY TO ANALYZE PROBLEM SOLVING SITUATIONS; APPLY COORDINATE GEOMETRY TO ANALYZE PROBLEM SOLVING SITUATIONS</p>	<p>QUIZZES, TESTS, PROJECTS, JOURNAL ENTRIES</p>	<p><b>DECEMBER AND JANUARY</b></p>
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<b>MEASUREMENT</b>	<b>SOLVE EQUATIONS/PORTIONS TO CONVERT TO EQUIVALENT MEASUREMENTS WITHIN METRIC AND CUSTOMARY MEASUREMENT SYSTEMS</b>	<b>DO YOU REMEMBER THE BASIC MEASURES OF THE METRIC SYSTEM AND HOW THEY RELATE TO ONE ANOTHER ? CAN YOU CONVERT A UNIT OF MEASURE INTO ANOTHER, AND VICE VERSA ? CAN YOU MEASURE USING THE COMMON TOOLS FOR MEASUREMENT- RULE, SCALE, GRADED CONTAINERS , ETC. ?</b> <b>CAN YOU REMEMBER THE BASIC MEASURES OF THE CUSTOMARY SYSTEM OF MEASURES AND HOW THEY RELATE TO ONE ANOTHER ? CAN YOU CONVERT FROM ONE UNIT INTO ANOTHER AND VICE VERSA ? CAN YOU MEASURE USING THE COMMON TOOLS OF MEASUREMENT FOR THE CUSTOMARY SYSTEM- RULER, SCALE, GRADED CONTAINERS ?</b> <b>DO YOU KNOW WHAT ERROR OF MEASUREMENT IS AND HOW TO CALCULATE IT FORM A GIVEN MEASURE ?</b>	<b>VOCABULARY:</b> <b>CELSIUS, CONVERT WITHIN A GIVEN SYSTEM (KNOWING THE NAMES OF UNITS EXPECTED), FAHRENHEIT, PROPORTION, ERROR OR PRECISION IN MEASUREMENT</b> <b>PROCEDURES:</b> <b>USING PROPORTIONS TO CONVERT UNITS OF MEASURES</b> <b>USING FORMULAS TO CONVERT TEMPERATURES</b>	<b>STUDENTS WILL:</b> <b>-DETERMINE WHAT CAN BE MEASURED AND HOW, USING APPROPRIATE METHODS AND FORMULAS;</b> <b>-USE UNITS TO GIVE MEANING TO MEASUREMENTS;</b> <b>-UNDERSTAND THAT ALL MEASUREMENT CONTAIN ERROR AND BE ABLE TO DTERMINE ITS SIGNIFICANCE;</b> <b>-DEVELOP STRATEGIES FOR ESTIMATING MEASUREMENTS</b>	<b>QUIZZES, TESTS, PROJECTS, JOURNAL ENTRIES</b>	<b>JANUARY AND FERUARY</b>
<b>*** TEST TAKING STRATEGIES AND PREPARATION FOR THE NYS MATH 8 TEST</b>	<b>-REVIEW OF COURSE CONTENT AND SAMPLE QUESTIONS</b> <b>-TEST TAKING STRATEGIES</b>	<b>CAN YOU CAREFULLY READ AND UNDERSTAND DIRECTIONS ON THE TEST ?</b> <b>-DO YOU KNOW HOW THE TEST IS SET UP AND HOW TO COMPLETE THE QUESTIONS ?</b>	<b>STUDENTS WILL KOW:</b> <b>MULTIPLE CHOICE QUESTIONS</b> <b>EXTENDED TASK QUESTIONS</b> <b>DIRECTIONS FOR COMPLETION</b>	<b>STUDENT WILL:</b> <b>UNDERSTAND THE STRUCTURE AND DIRECTIONS OF THE NYS MATH 8 TEST</b>	<b>NYS MATH 8 TEST</b>	<b>FEBRUARY AND MARCH</b>

<b>ALGEBRA- EQUATIONS AND INEQUALITIES PART II</b>	<b>-SOLVE MULTI- STEP INEQUALITIES AND GRAPH SOLUTION SETS -SOLVE LINEAR INEQUALITIES BY COMBINING LIKE TERMS, USING THE DISTRIBUTIVE PROPERTY, OR MOVING VARIABLES TO ONE SIDE OF THE INEQUALITIES -DEFINE AND USE THE CORRECT TERMINOLOGY WHEN REFERRING TO FUNCTION (DOMAIN AND RANGE) -DETERMINE IF A RELATION IS A FUNCTION -INTERPRET MULTIPLE REPRESENTATIO NS USING EQUATION, TABLE OF VALUES, AND GRAPH</b>	<b>CAN YOU SOLVE MULTI-STEP INEQUALITIES AND JUSTIFY WHY/ HOW YOU DID IT ? CAN YOU DETERMINE IF A RELATION IS A FUNCTION AND EXPLAIN WHY ? CAN YOU INTERPRET REPRESENTATION BY USING AN EQUATION, GRAPH, OR A TABLE OF VALUES ?</b>	<b>VOCABULARY: INEQUALITY. DOMAIN, RANGE, RELATION, FUNCTION, REPRESENTATION</b>	<b>STUDENT WILL: DEMONSTRATE KNOWLEDGE OF FUNCTIONS AND REPRESENTATIONS IN VARIOUS FORMS SOLVE EQUATIONS AND INEQUALITIES USING THE PROPERTIES OF EQUALITY AND INEQUALITY</b>	<b>QUIZZES, TESTS, PROJECTS, JOURNAL ENTRIES</b>	<b>MARCH AND APRIL</b>
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<p><b>GEOMETRY- COORDINATE GEOMETRY AND CONSTRUCTIONS PART II</b></p>	<p>-DETERMINE SLOPE OF A LINE FROM A GRAPH AND EXPLAIN THE MEANING -DETERMINE THE Y-INTERCEPT OF A LINE AND BE ABLE TO EXPLAIN THE Y-INTERCEPT -GRAPH A LINE USING A TABLE OF VALUES -DETERMINE THE EQUATION OF A LINE GIVEN THE SLOPE AND Y-INTERCEPT -GRAPH A LINE FROM AN EQUATION IN SLOPE INTERCEPT FORM -SOLVE SYSTEMS OF EQUATIONS GRAPHICALLY -GRAPH THE SOLUTION SET OF INEQUALITIES ON THE NUMBER LINE -DISTINGUISH BETWEEN LINEAR AND NONLINEAR EQUATIONS GRAPHICALLY -RECOGNIZE THE CHARACTERISTICS OF QUADRATICS IN</p>	<p>CAN YOU DETERMINE THE SLOPE OF A LINE FROM ITS GRAPH AND EXPLAIN ITS MEANING ? CAN YOU DETERMINE THE Y -INTERCEPT AND EXPLAIN ITS MEANING ? CAN YOU GRAPH A LINE USING A TABLE OF VALUES ? CAN YOU WRITE THE EQUATION REPRESENTED BY A LINE GRAPHED ON THE COORDINATE PLANE ? CAN YOU WRITE THE EQUATION JUST USING THE SLOPE AND Y-INTERCEPT ? CAN YOU SOLVE A SYSTEM OF EQUATIONS GRAPHICALLY ? CAN YOU GRAPH AN INEQUALITY ON THE NUMBER LINE ? CAN YOU DISTINGUISH BETWEEN A LINEAR AND NONLINEAR EQUATION AND JUSTIFY YOUR ANSWER ? CAN YOU RECOGNIZE THE CHARACTERISTICS OF QUADRATICS IN TABLES, GRAPHS, EQUATIONS, AND SITUATIONS ?</p>	<p><b>VOCABULARY:</b> SLOPE, Y -INTERCEPT, CONSTANT RATE OF CHANGE, GRAPHICALLY, ALGEBRAICALLY, TABLE OF VALUES, SYSTEM OF EQUATIONS, LINEAR, NONLINEAR, FORMAT, INEQUALITY, SOLUTION, SOLUTION SET, CHARACTERISTICS, QUADRATICS, SITUATION <b>PROCEDURES:</b> COMPLETE TABLES OF VALUES DRAW AND LABEL GRAPHS INTERPRET GRAPHS</p> <p style="text-align: center;">02/02/067</p>	<p><b>STUDENT WILL:</b> -USE VISUALIZATION AND SPATIAL REASONING TO ANALYZE CHARACTERISTICS AND PROPERTIES OF GEOMETRIC RELATIONSHIPS -IDENTIFY AND JUSTIFY GEOMETRIC RELATIONSHIPS, FORMALLY AND INFORMALLY -APPLY COORDINATE GEOMETRY TO ANALYZE PROBLEM SOLVING SITUATIONS -RECOGNIZE, USE , AND REPRESENT GEOMETRICALLY PATTERNS, RELATIONS, AND FUNCTIONS</p>	<p>QUIZZES, TESTS, PROJECTS, JOURNAL ENTRIES</p>	<p><b>APRIL AND MAY</b></p>
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02/02/068