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ABSTRACT

Following a review of the mathematics topics taught in accounting, electronics, auto, food and clothing, and metals courses at Linn-Benton Community College, Albany, Oregon, recommendations were made to grant one semester of mathematics credit for completing a two-year sequence of these courses. The other required semester of mathematics should be acquired in a new course team taught by a mathematics teacher and a vocational-technical education teacher. (This report contains a checklist of mathematics competencies offered in the vocational-technical courses.) (KC)

RECOMMENDATIONS

FOR

ALTERNATIVE CREDIT

Ed Lenderman

A Regional Project
of

Linn-Benton Community College
Albany, Oregon

1988

Recommendations for Alternative Credits

I reviewed the math topics taught in Accounting, Electronics, Auto, Food and Clothing, and Metals with the instructors of those courses. Each of these courses has a two-year sequence. After comparing and matching the math topics taught with the math checklist provided, I feel all of the courses provide math topics in at least 25% of the two-year sequence. Most of the courses teach just the material covered in the math checklist and are cross-referenced with the course objectives from each class. Electronics offers more than the checklist covered. In addition to the cross-referenced objectives, the topics of logarithms, logic, and different number bases as well as sections of trigonometry are covered. Metals also does some work with the use of trigonometric functions.

All of the courses offered instruction in the math topics taught, but the majority of the class time is spent on practical applications of the topics being covered. The practical application of the material is the essential part of this recommendation. Practical application is the motivating factor for some of the students in these courses to learn the math. Practical application not in a book, but in a hands-on lab situation.

I feel each of the course sequences reviewed should receive one semester of math credit for completing and passing the two-year sequence. The courses are:

Accounting I & II

Electronics I & II

Auto I & II with Advanced Auto II & IV

Clothing I, II, III & IV

Foods I & II with Food Service

Metal Fabrication with Advanced Metals I

Voc/Tech Math Class

To provide for the other semester of math credit (one semester for the two-years vocational/technical course), a vocational/technical math class could be offered. There are several options I have explored for this class. One obvious option is to teach a semester course, offered each semester, to be taught by either a math or a vocational/technical teacher. My feeling is that this is defeating the purpose of the class. A math teacher would do well with the concepts and the vocational/technical teacher would do well with the applications. We now offer year-long courses that currently meet these needs. We are trying to add something new for the voc/tech student. My proposal is to offer the course once during the second semester or once each semester if the enrollment were large enough. The enrollment would need to be a minimum

of forty students. The course would be taught by both a math and a voc/tech teacher. The class could be split into two groups. The math teacher would present the math concepts to one group of the students in the classroom and the voc/tech teacher would provide labs to the other group to reinforce the math concepts presented. The labs would be subjects from all of the voc/tech courses which could be presented in the Auto and Metals building. Below are some suggested topics by course which could be taught in the Vocational/Technical Math Class.

Accounting

Simple interest (credit, notes, etc.)
Depreciation
Dealing with uncollectible accounts
Payroll and Taxes (time cards)
Reconciliation (checkbook, bank statements, etc.)
Cost mark-up and mark-down
Sales tax
Invoices (extentions)

Electronics

Reading scales (meters, rulers, extrapolating, interpolating, etc.)
Color codes (metric system)
Balancing equations (balance outer valence shell)
Use of a calculator (RPN and Polish notations)
Ohm's Law
Concepts of base units and constants
Current nodes
Resistance
Lead, lag, radians, degrees, pi, angles, square roots, trig functions
Circles (Cartesian system and quadrants)
Plotting and graphing
Gears and gear ratios
Tensile strength

Foods

Recipe conversion
Measuring (volume)
Pricing (budget sheets)
Calculating yield
Cost comparisons
Converting metric to standard and vice versa
Problem solving (ingredient substitutions, microwave to range, use of time, elapsed time, evaluating recipes, etc.)
Charts and tables (weight control, nutrients, statistics, etc.)
Temperatures

Business management (cost control, % gain or loss, inventory, mark-ups)
Serving control
Cash registers
Counting change
Writing money figures

Clothing

Linear measure
Pricing
Budgets
Converting metric to standard and vice versa
Time use
Charts and tables on pattern envelopes
Alterations
Cost comparisons (homemade versus store bought)
Mark-ups, mark-downs, profit, loss (percents)
Fashion merchandising
Clothing layouts
Clothing companies cutting corners (cost control)
Sales
Unit conversions in length (yards to feet to inches and vice versa)
Purchasing (estimating and rounding)

Auto

Compression ratio
Cylinder volume
Linear measurement (to 1/64 and .001)
Reading metered scales
Percent calculations
Fractions to decimals and vice versa
Maximum allowable variation (in measure and percent)
Reading specification charts
Calculating mechanics pay
Calculating clearances
Using a brake drum gauge
Reading a micrometer and dial indicator
Nut and bolt sizing (SAE and metric)
Wrench sizing (SAE and metric)
Inch per pound and foot per pound torque (conversion)
Calculating force (using formulas - hydrolics)
Ohm's Law
Gear ratio calculations
Leverage calculations
Cost/benefit analysis

Metals

Measurement (rulers, micrometers, diocalipers, dial indicators, pyrometers)
Angles (measurement and use of protractors)
Figuring spindle RPM on machining equipment
Thread depths
Tap drill sizes
Tapers
Cost (materials, labor, total cost of projects)
Reading tables, charts, and graphs
Ordering (buying) materials

Ed Lenderman
SAHS

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MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II		
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers	X	X		
1.1.2 fractions	X	X		
1.1.3 decimals	X	X		
1.1.4 percents	X	X		
1.1.5 integers	X	X		
1.1.6 ratio and proportion		X		
1.2 The student will be able to count numbers.	X	X		
1.3 The student will be able to order and compare numbers.		X		
1.3.1 whole numbers		X		
1.3.2 fractions				
1.3.3 decimals		X		
1.3.4 percents		X		
1.3.5 integers		X		
1.4 The student will be able to read and write numbers.	X	X		
1.4.1 whole numbers	X	X		
1.4.2 fractions				
1.4.3 decimals				
1.4.4 integers				
1.5 The student will be able to demonstrate knowledge of place value.	X	X		
1.5.1 whole numbers	X	X		
1.5.2 decimals				
1.5.3 integers				
1.6 The student will be able to round numbers		X		
1.6.1 whole numbers		X		
1.6.2 fractions				
1.6.3 decimals		X		
1.6.4 integers				
1.7 The student will be able to recognize equivalent forms of fractions.				
1.8 The student will be able to identify and know the value of United States currency.		X		
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.	X	X		
2.1 The student will be able to perform basic operations on whole numbers.	X	X		
2.1.1 add	X	X		
2.1.2 subtract	X	X		

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II		
2.1.3 multiply	X	X		
2.1.4 divide	X	X		
2.1.5 find averages		X		
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms				
2.2.1.1 reduce fractions				
2.2.1.2 change mixed numbers to improper fractions				
2.2.2 add				
2.2.3 subtract				
2.2.4 multiply				
2.2.5 divide				
2.2.6 find averages				
2.2.8 change a fraction to an equivalent decimal	X	X		
2.2.9 change a fraction to an equivalent percent		X		
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction				
2.3.2 change a decimal to an equivalent percent		X		
2.3.3 add		X		
2.3.4 subtract		X		
2.3.5 multiply		X		
2.3.6 divide		X		
2.3.7 find averages		X		
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction				
2.4.2 change a percent to an equivalent decimal		X		
2.4.3 find a percent of a number		X		
2.4.4 find what percent one number is of another				
2.4.5 find a number when the percent of it is given				
2.5 The student will be able to solve ratio and proportion problems.				

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II		
2.5.1 determine the ratio between two given quantities	X	X		
2.5.2 find the fourth term of a proportion when three terms are given				
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables	X	X		
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add	X	X		
2.7.2 subtract				
2.7.3 multiply				
2.7.4 divide				
2.7.5 find averages				
2.12 The student will be able to perform basic operations on variables and algebraic expressions.				
2.12.1 have an awareness of variables	X	X		
2.12.2 write and explain algebraic expressions using variables				
2.12.3 simplify by combining similar terms				
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols				
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents				
2.15.6 read, write and explain numbers using scientific notation				
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations				
2.18.2 commutative				
2.18.3 associative				
2.18.4 distributive				

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II		
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.				
3.1.1 identify units of time				
3.1.2 tell time				
3.1.2.1 use concepts of time	X	X		
3.1.3 figure elapsed time	X	X		
3.1.4 make conversions with units of time	X	X		
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length				
3.2.2 metric system				
3.2.3 English system				
3.2.4 read a ruler				
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system				
3.3.4 weigh an object				
3.4 The student will know and use units of volume.				
3.4.2 metric system				
3.4.3 English system				
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius				
3.5.2 Fahrenheit				
3.6 The student will know and use units of angle measurement.				
3.6.1 different angle measures				
3.6.1.1 degrees				
3.6.2 measure an angle				
3.6.2.1 protractor				
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.				

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II		
4.3.1 identify and name an angle				
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon				
4.7.3 circumference of a circle				
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure				
4.8.2 polygon				
4.8.2.1 square				
4.8.2.2 rectangle				
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.	X	X		
5.2 The student will be able to identify appropriate uses of calculators.	X	X		
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X		
6.2 The student will be able to guess, check and refine.	X	X		
6.3 The student will be able to look for a pattern.				
6.4 The student will be able to make a systematic list.	X	X		
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.	X	X		
6.6 The student will be able to eliminate possibilities.	X	X		
6.7 The student will be able to devise a simpler problem.				
6.8 The student will be able to work backward.	X	X		
6.9 The student will be able to evaluate the solution.	X	X		
6.10 The student will be able to communicate strategies used when solving problems.				
6.11 The student will be able to know that problems may have multiple solutions or no solutions.	X	X		

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II		
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.				
7.2 The student will be able to estimate measurements.				
7.3 The student will be able to estimate computations.				
7.4 The student will be able to recognize reasonableness of results.	X	X		
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X		
8.2 The student will be able to construct tables, charts, and graphs.	X	X		
8.3 The student will be able to interpret tables, charts, and graphs.	X	X		
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.		X		
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.				
10.2 The student will be able to solve problems involving money.	X	X		
10.3 The student will be able to solve problems involving measurement.				
10.4 The student will be able to solve problems involving geometric concepts.				
10.5 The student will be able to solve problems involving numerical information in a variety of forms.				
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X	X		

MATH CHECKLIST

COURSE GOALS	Electronics I	Electronics II		
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers				
1.1.2 fractions				
1.1.3 decimals	X			
1.1.4 percents		X		
1.1.5 integers	X	X		
1.1.6 ratio and proportion	X			
1.2 The student will be able to count numbers.				
1.3 The student will be able to order and compare numbers.				
1.3.1 whole numbers				
1.3.2 fractions				
1.3.3 decimals	X			
1.3.4 percents		X		
1.3.5 integers	X	X		
1.4 The student will be able to read and write numbers.				
1.4.1 whole numbers	X			
1.4.2 fractions				
1.4.3 decimals	X			
1.4.4 integers	X	X		
1.5 The student will be able to demonstrate knowledge of place value.				
1.5.1 whole numbers				
1.5.2 decimals	X			
1.5.3 integers	X	X		
1.6 The student will be able to round numbers				
1.6.1 whole numbers				
1.6.2 fractions				
1.6.3 decimals	X			
1.6.4 integers	X			
1.7 The student will be able to recognize equivalent forms of fractions.				
1.8 The student will be able to identify and know the value of United States currency.				
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.				
2.1 The student will be able to perform basic operations on whole numbers.				
2.1.1 add	X			
2.1.2 subtract	X			

MATH CHECKLIST

COURSE GOALS	Electronics I	Electronics II		
2.1.3 multiply	X			
2.1.4 divide	X			
2.1.5 find averages				
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms				
2.2.1.1 reduce fractions				
2.2.1.2 change mixed numbers to improper fractions				
2.2.2 add				
2.2.3 subtract				
2.2.4 multiply				
2.2.5 divide				
2.2.6 find averages				
2.2.8 change a fraction to an equivalent decimal				
2.2.9 change a fraction to an equivalent percent				
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction				
2.3.2 change a decimal to an equivalent percent		X		
2.3.3 add	X	X		
2.3.4 subtract	X	X		
2.3.5 multiply	X	X		
2.3.6 divide	X	X		
2.3.7 find averages				
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction				
2.4.2 change a percent to an equivalent decimal		X		
2.4.3 find a percent of a number		X		
2.4.4 find what percent one number is of another		X		
2.4.5 find a number when the percent of it is given		X		
2.5 The student will be able to solve ratio and proportion problems.	X			

MATH CHECKLIST

COURSE GOALS	Electronics I	Electronics II		
2.5.1 determine the ratio between two given quantities	X			
2.5.2 find the fourth term of a proportion when three terms are given	X			
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables	X	X		
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add	X	X		
2.7.2 subtract	X	X		
2.7.3 multiply	X	X		
2.7.4 divide	X	X		
2.7.5 find averages				
2.12 The student will be able to perform basic operations on variables and algebraic expressions.	X	X		
2.12.1 have an awareness of variables	X	X		
2.12.2 write and explain algebraic expressions using variables		X		
2.12.3 simplify by combining similar terms	X	X		
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols				
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents	X	X		
2.15.6 read, write and explain numbers using scientific notation	X	X		
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations	X			
2.18.2 commutative	X			
2.18.3 associative	X			
2.18.4 distributive	X			

MATH CHECKLIST

COURSE GOALS	Electronics I	Electronics II		
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.		X		
3.1.1 identify units of time				
3.1.2 tell time				
3.1.2.1 use concepts of time				
3.1.3 figure elapsed time				
3.1.4 make conversions with units of time		X		
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length				
3.2.2 metric system	X			
3.2.3 English system	X			
3.2.4 read a ruler	X			
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system				
3.3.4 weigh an object				
3.4 The student will know and use units of volume.				
3.4.2 metric system				
3.4.3 English system				
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius		X		
3.5.2 Fahrenheit		X		
3.6 The student will know and use units of angle measurement.				
3.6.1 different angle measures	X			
3.6.1.1 degrees	X			
3.6.2 measure an angle	X			
3.6.2.1 protractor	X			
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.	X			

MATH CHECKLIST

COURSE GOALS	Electronics I	Electronics II		
4.3.1 identify and name an angle	X			
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon				
4.7.3 circumference of a circle	X			
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure	X			
4.8.2 polygon				
4.8.2.1 square				
4.8.2.2 rectangle				
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.	X	X		
5.2 The student will be able to identify appropriate uses of calculators.	X	X		
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X		
6.2 The student will be able to guess, check and refine.	X			
6.3 The student will be able to look for a pattern.		X		
6.4 The student will be able to make a systematic list.	X	X		
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.	X	X		
6.6 The student will be able to eliminate possibilities.	X	X		
6.7 The student will be able to devise a simpler problem.				
6.8 The student will be able to work backward.	X			
6.9 The student will be able to evaluate the solution.	X	X		
6.10 The student will be able to communicate strategies used when solving problems.		X		
6.11 The student will be able to know that problems may have multiple solutions or no solutions.	X	X		

MATH CHECKLIST

COURSE GOALS	Electronics I	Electronics II		
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.				
7.2 The student will be able to estimate measurements.				
7.3 The student will be able to estimate computations.				
7.4 The student will be able to recognize reasonableness of results.	X	X		
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X		
8.2 The student will be able to construct tables, charts, and graphs.	X	X		
8.3 The student will be able to interpret tables, charts, and graphs.	X	X		
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.	X	X		
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.	X			
10.2 The student will be able to solve problems involving money.				
10.3 The student will be able to solve problems involving measurement.	X			
10.4 The student will be able to solve problems involving geometric concepts.	X			
10.5 The student will be able to solve problems involving numerical information in a variety of forms.	X			
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X			

MATH CHECKLIST

COURSE GOALS	Auto I	Auto II	Advanced Auto III	Advanced Auto IV
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers	X	X	X	X
1.1.2 fractions	X	X	X	X
1.1.3 decimals	X	X	X	X
1.1.4 percents	X	X	X	X
1.1.5 integers	X	X	X	X
1.1.6 ratio and proportion	X	X	X	X
1.2 The student will be able to count numbers.				
1.3 The student will be able to order and compare numbers.				
1.3.1 whole numbers				
1.3.2 fractions	X	X	X	X
1.3.3 decimals	X	X	X	X
1.3.4 percents				
1.3.5 integers				
1.4 The student will be able to read and write numbers.				
1.4.1 whole numbers				
1.4.2 fractions				
1.4.3 decimals	X	X	X	X
1.4.4 integers				
1.5 The student will be able to demonstrate knowledge of place value.				
1.5.1 whole numbers				
1.5.2 decimals	X	X	X	X
1.5.3 integers	X	X	X	X
1.6 The student will be able to round numbers				
1.6.1 whole numbers	X	X	X	X
1.6.2 fractions				
1.6.3 decimals	X	X	X	X
1.6.4 integers				
1.7 The student will be able to recognize equivalent forms of fractions.	X	X	X	X
1.8 The student will be able to identify and know the value of United States currency.				
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.				
2.1 The student will be able to perform basic operations on whole numbers.				
2.1.1 add	X	X	X	X
2.1.2 subtract	X	X	X	X

MATH CHECKLIST

COURSE GOALS	Auto I	Auto II	Advanced Auto III	Advanced Auto IV
2.1.3 multiply	X	X	X	X
2.1.4 divide	X	X	X	X
2.1.5 find averages	X	X	X	X
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms	X			
2.2.1.1 reduce fractions	X	X	X	X
2.2.1.2 change mixed numbers to improper fractions	X	X		X
2.2.2 add	X	X	X	X
2.2.3 subtract	X	X	X	X
2.2.4 multiply				
2.2.5 divide				
2.2.6 find averages	X	X		X
2.2.8 change a fraction to an equivalent decimal	X	X	X	X
2.2.9 change a fraction to an equivalent percent	X		X	X
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction				
2.3.2 change a decimal to an equivalent percent	X		X	X
2.3.3 add	X	X	X	X
2.3.4 subtract	X	X	X	X
2.3.5 multiply				
2.3.6 divide				
2.3.7 find averages				
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction				
2.4.2 change a percent to an equivalent decimal	X		X	X
2.4.3 find a percent of a number	X	X	X	X
2.4.4 find what percent one number is of another				
2.4.5 find a number when the percent of it is given	X	X	X	X
2.5 The student will be able to solve ratio and proportion problems.				

MATH CHECKLIST

COURSE GOALS	Auto I	Auto II	Advanced Auto III	Advanced Auto IV
2.5.1 determine the ratio between two given quantities	X			
2.5.2 find the fourth term of a proportion when three terms are given				
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables	X			
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add	X	X	X	X
2.7.2 subtract				
2.7.3 multiply				
2.7.4 divide				
2.7.5 find averages				
2.12 The student will be able to perform basic operations on variables and algebraic expressions.				
2.12.1 have an awareness of variables	X			
2.12.2 write and explain algebraic expressions using variables				
2.12.3 simplify by combining similar terms				
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols				
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents				
2.15.6 read, write and explain numbers using scientific notation				
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations				
2.18.2 commutative				
2.18.3 associative				
2.18.4 distributive				

MATH CHECKLIST

COURSE GOALS	Auto I	Auto II	Advanced Auto III	Advanced Auto IV
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.				
3.1.1 identify units of time	X		X	X
3.1.2 tell time				
3.1.2.1 use concepts of time	X		X	X
3.1.3 figure elapsed time				
3.1.4 make conversions with units of time	X		X	X
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length	X	X	X	X
3.2.2 metric system	X	X	X	X
3.2.3 English system	X	X	X	X
3.2.4 read a ruler	X	X	X	X
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system				
3.3.4 weigh an object				
3.4 The student will know and use units of volume.				
3.4.2 metric system	X	X		X
3.4.3 English system	X	X		X
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius				
3.5.2 Fahrenheit	X	X	X	X
3.6 The student will know and use urits of angle measurement.				
3.6.1 different angle measures				
3.6.1.1 degrees	X	X		X
3.6.2 measure an angle	X	X		X
3.6.2.1 protractor				
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.				

MATH CHECKLIST

COURSE GOALS	Auto I	Auto II	Advanced Auto III	Advanced Auto IV
4.3.1 identify and name an angle				
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon				
4.7.3 circumference of a circle				
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure				
4.8.2 polygon				
4.8.2.1 square				
4.8.2.2 rectangle				
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.	X	X	X	X
5.2 The student will be able to identify appropriate uses of calculators.	X	X	X	X
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X	X	X
6.2 The student will be able to guess, check and refine.	X	X	X	X
6.3 The student will be able to look for a pattern.	X	X	X	X
6.4 The student will be able to make a systematic list.	X	X	X	X
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.	X	X	X	X
6.6 The student will be able to eliminate possibilities.	X	X	X	X
6.7 The student will be able to devise a simpler problem.				
6.8 The student will be able to work backward.				
6.9 The student will be able to evaluate the solution.	X	X	X	X
6.10 The student will be able to communicate strategies used when solving problems.	X	X	X	X
6.11 The student will be able to know that problems may have multiple solutions or no solutions.				

MATH CHECKLIST

COURSE GOALS	Auto I	Auto II	Advanced Auto III	Advanced Auto IV
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.	X	X	X	X
7.2 The student will be able to estimate measurements.	X	X	X	X
7.3 The student will be able to estimate computations.				
7.4 The student will be able to recognize reasonableness of results.	X	X	X	X
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X	X	X
8.2 The student will be able to construct tables, charts, and graphs.				
8.3 The student will be able to interpret tables, charts, and graphs.	X	X	X	X
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.	X	X	X	X
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.				
10.2 The student will be able to solve problems involving money.	X		X	X
10.3 The student will be able to solve problems involving measurement.	X	X	X	X
10.4 The student will be able to solve problems involving geometric concepts.	X	X		X
10.5 The student will be able to solve problems involving numerical information in a variety of forms.				
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X	X	X	X

MATH CHECKLIST

COURSE GOALS	Foods I	Foods II	Food Service	
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers	X	X	X	
1.1.2 fractions	X	X	X	
1.1.3 decimals	X	X	X	
1.1.4 percents			X	
1.1.5 integers				
1.1.6 ratio and proportion			X	
1.2 The student will be able to count numbers.				
1.3 The student will be able to order and compare numbers.				
1.3.1 whole numbers				
1.3.2 fractions	X	X	X	
1.3.3 decimals	X	X	X	
1.3.4 percents			X	
1.3.5 integers				
1.4 The student will be able to read and write numbers.				
1.4.1 whole numbers	X	X	X	
1.4.2 fractions	X	X	X	
1.4.3 decimals	X	X	X	
1.4.4 integers				
1.5 The student will be able to demonstrate knowledge of place value.				
1.5.1 whole numbers				
1.5.2 decimals	X	X	X	
1.5.3 integers				
1.6 The student will be able to round numbers				
1.6.1 whole numbers	X	X	X	
1.6.2 fractions				
1.6.3 decimals	X	X	X	
1.6.4 integers				
1.7 The student will be able to recognize equivalent forms of fractions.	X	X	X	
1.8 The student will be able to identify and know the value of United States currency.	X	X	X	
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.				
2.1 The student will be able to perform basic operations on whole numbers.				
2.1.1 add	X	X	X	
2.1.2 subtract	X	X	X	

MATH CHECKLIST

COURSE GOALS	Foods I	Foods II	Food Service	
2.1.3 multiply	X	X	X	
2.1.4 divide	X	X	X	
2.1.5 find averages				
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms	X	X	X	
2.2.1.1 reduce fractions	X	X	X	
2.2.1.2 change mixed numbers to improper fractions	X	X	X	
2.2.2 add	X	X	X	
2.2.3 subtract	X	X	X	
2.2.4 multiply	X	X	X	
2.2.5 divide	X	X	X	
2.2.6 find averages				
2.2.8 change a fraction to an equivalent decimal				
2.2.9 change a fraction to an equivalent percent				
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction				
2.3.2 change a decimal to an equivalent percent				
2.3.3 add	X	X	X	
2.3.4 subtract	X	X	X	
2.3.5 multiply	X	X	X	
2.3.6 divide	X	X	X	
2.3.7 find averages	X	X	X	
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction				
2.4.2 change a percent to an equivalent decimal				
2.4.3 find a percent of a number			X	
2.4.4 find what percent one number is of another			X	
2.4.5 find a number when the percent of it is given				
2.5 The student will be able to solve ratio and proportion problems.				

MATH CHECKLIST

COURSE GOALS	Foods I	Foods II	Food Service	
2.5.1 determine the ratio between two given quantities	X	X	X	
2.5.2 find the fourth term of a proportion when three terms are given			X	
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables	X	X	X	
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add				
2.7.2 subtract				
2.7.3 multiply				
2.7.4 divide				
2.7.5 find averages				
2.12 The student will be able to perform basic operations on variables and algebraic expressions.				
2.12.1 have an awareness of variables	X	X	X	
2.12.2 write and explain algebraic expressions using variables				
2.12.3 simplify by combining similar terms				
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols				
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents				
2.15.6 read, write and explain numbers using scientific notation				
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations				
2.18.2 commutative				
2.18.3 associative				
2.18.4 distributive				

MATH CHECKLIST

COURSE GOALS	Foods I	Foods II	Food Service	
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.				
3.1.1 identify units of time	X	X	X	
3.1.2 tell time	X	X	X	
3.1.2.1 use concepts of time				
3.1.3 figure elapsed time	X	X	X	
3.1.4 make conversions with units of time	X	X	X	
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length				
3.2.2 metric system				
3.2.3 English system	X	X	X	
3.2.4 read a ruler				
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system		X	X	
3.3.4 weigh an object		X	X	
3.4 The student will know and use units of volume.				
3.4.2 metric system				
3.4.3 English system	X	X	X	
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius				
3.5.2 Fahrenheit	X	X	X	
3.6 The student will know and use units of angle measurement.				
3.6.1 different angle measures				
3.6.1.1 degrees				
3.6.2 measure an angle				
3.6.2.1 protractor				
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.				

MATH CHECKLIST

COURSE GOALS	Foods I	Foods II	Food Service	
4.3.1 identify and name an angle				
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon				
4.7.3 circumference of a circle				
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure				
4.8.2 polygon				
4.8.2.1 square				
4.8.2.2 rectangle				
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.	X	X	X	
5.2 The student will be able to identify appropriate uses of calculators.	X	X	X	
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X	X	
6.2 The student will be able to guess, check and refine.	X	X	X	
6.3 The student will be able to look for a pattern.				
6.4 The student will be able to make a systematic list.				
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.				
6.6 The student will be able to eliminate possibilities.				
6.7 The student will be able to devise a simpler problem.				
6.8 The student will be able to work backward.				
6.9 The student will be able to evaluate the solution.				
6.10 The student will be able to communicate strategies used when solving problems.				
6.11 The student will be able to know that problems may have multiple solutions or no solutions.				

MATH CHECKLIST

COURSE GOALS	Foods I	Foods II	Food Service	
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.	X	X	X	
7.2 The student will be able to estimate measurements.	X	X	X	
7.3 The student will be able to estimate computations.				
7.4 The student will be able to recognize reasonableness of results.	X	X	X	
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X	X	
8.2 The student will be able to construct tables, charts, and graphs.	X	X	X	
8.3 The student will be able to interpret tables, charts, and graphs.	X	X	X	
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.	X	X	X	
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.	X	X	X	
10.2 The student will be able to solve problems involving money.	X	X	X	
10.3 The student will be able to solve problems involving measurement.	X	X	X	
10.4 The student will be able to solve problems involving geometric concepts.				
10.5 The student will be able to solve problems involving numerical information in a variety of forms.				
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X	X	X	

MATH CHECKLIST

COURSE GOALS	Clothing I	Clothing II	Clothing III	Clothing IV
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers	X	X	X	X
1.1.2 fractions	X	X	X	X
1.1.3 decimals	X	X	X	X
1.1.4 percents	X	X	X	X
1.1.5 integers				
1.1.6 ratio and proportion	X	X	X	X
1.2 The student will be able to count numbers.				
1.3 The student will be able to order and compare numbers.				
1.3.1 whole numbers	X	X	X	X
1.3.2 fractions				
1.3.3 decimals	X	X	X	X
1.3.4 percents				
1.3.5 integers				
1.4 The student will be able to read and write numbers.				
1.4.1 whole numbers	X	X	X	X
1.4.2 fractions				
1.4.3 decimals				
1.4.4 integers				
1.5 The student will be able to demonstrate knowledge of place value.				
1.5.1 whole numbers				
1.5.2 decimals				
1.5.3 integers				
1.6 The student will be able to round numbers				
1.6.1 whole numbers				
1.6.2 fractions				
1.6.3 decimals				
1.6.4 integers	X	X	X	X
1.7 The student will be able to recognize equivalent forms of fractions.				
1.8 The student will be able to identify and know the value of United States currency.	X	X	X	X
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.				
2.1 The student will be able to perform basic operations on whole numbers.				
2.1.1 add	X	X	X	X
2.1.2 subtract	X	X	X	X

MATH CHECKLIST

COURSE GOALS	Clothing I	Clothing II	Clothing III	Clothing IV
2.1.3 multiply	X	X	X	X
2.1.4 divide	X	X	X	X
2.1.5 find averages				
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms				
2.2.1.1 reduce fractions				
2.2.1.2 change mixed numbers to improper fractions				
2.2.2 add	X	X	X	X
2.2.3 subtract				
2.2.4 multiply	X	X	X	X
2.2.5 divide				
2.2.6 find averages				
2.2.8 change a fraction to an equivalent decimal				
2.2.9 change a fraction to an equivalent percent				
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction				
2.3.2 change a decimal to an equivalent percent				
2.3.3 add	X	X	X	X
2.3.4 subtract	X	X	X	X
2.3.5 multiply	X	X	X	X
2.3.6 divide	X	X	X	X
2.3.7 find averages	X	X	X	X
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction				
2.4.2 change a percent to an equivalent decimal				
2.4.3 find a percent of a number	X	X	X	X
2.4.4 find what percent one number is of another	X	X	X	X
2.4.5 find a number when the percent of it is given				
2.5 The student will be able to solve ratio and proportion problems.				

MATH CHECKLIST

COURSE GOALS	Clothing I	Clothing II	Clothing III	Clothing IV
2.5.1 determine the ratio between two given quantities	X	X	X	X
2.5.2 find the fourth term of a proportion when three terms are given				
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables	X	X	X	X
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add				
2.7.2 subtract				
2.7.3 multiply				
2.7.4 divide				
2.7.5 find averages				
2.12 The student will be able to perform basic operations on variables and algebraic expressions.				
2.12.1 have an awareness of variables	X	X	X	X
2.12.2 write and explain algebraic expressions using variables				
2.12.3 simplify by combining similar terms				
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols				
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents				
2.15.6 read, write and explain numbers using scientific notation				
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations				
2.18.2 commutative				
2.18.3 associative				
2.18.4 distributive				

MATH CHECKLIST

COURSE GOALS	Clothing I	Clothing II	Clothing III	Clothing IV
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.				
3.1.1 identify units of time				
3.1.2 tell time				
3.1.2.1 use concepts of time	X	X	X	X
3.1.3 figure elapsed time	X	X	X	X
3.1.4 make conversions with units of time				
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length				
3.2.2 metric system	X	X	X	X
3.2.3 English system	X	X	X	X
3.2.4 read a ruler	X	X	X	X
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system				
3.3.4 weigh an object				
3.4 The student will know and use units of volume.				
3.4.2 metric system				
3.4.3 English system				
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius				
3.5.2 Fahrenheit				
3.6 The student will know and use units of angle measurement.				
3.6.1 different angle measures				
3.6.1.1 degrees				X
3.6.2 measure an angle				X
3.6.2.1 protractor				X
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.				

MATH CHECKLIST

COURSE GOALS	Clothing I	Clothing II	Clothing III	Clothing IV
4.3.1 identify and name an angle				
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon				
4.7.3 circumference of a circle				
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure				
4.8.2 polygon				
4.8.2.1 square				
4.8.2.2 rectangle				
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.	X	X	X	X
5.2 The student will be able to identify appropriate uses of calculators.	X	X	X	X
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X	X	X
6.2 The student will be able to guess, check and refine.	X	X	X	X
6.3 The student will be able to look for a pattern.				
6.4 The student will be able to make a systematic list.				
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.	X	X	X	X
6.6 The student will be able to eliminate possibilities.				
6.7 The student will be able to devise a simpler problem.				
6.8 The student will be able to work backward.				
6.9 The student will be able to evaluate the solution.				
6.10 The student will be able to communicate strategies used when solving problems.				
6.11 The student will be able to know that problems may have multiple solutions or no solutions.				

MATH CHECKLIST

COURSE GOALS	Clothing I	Clothing II	Clothing III	Clothing IV
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.	X	X	X	X
7.2 The student will be able to estimate measurements.	X	X	X	X
7.3 The student will be able to estimate computations.	X	X	X	X
7.4 The student will be able to recognize reasonableness of results.	X	X	X	X
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X	X	X
8.2 The student will be able to construct tables, charts, and graphs.	X	X	X	X
8.3 The student will be able to interpret tables, charts, and graphs.	X	X	X	X
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.	X	X	X	X
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.	X	X	X	X
10.2 The student will be able to solve problems involving money.	X	X	X	X
10.3 The student will be able to solve problems involving measurement.	X	X	X	X
10.4 The student will be able to solve problems involving geometric concepts.				X
10.5 The student will be able to solve problems involving numerical information in a variety of forms.				
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X	X	X	X

MATH CHECKLIST

COURSE GOALS	Metal Fabrication	Advanced Metals I		
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers	X	X		
1.1.2 fractions	X	X		
1.1.3 decimals	X	X		
1.1.4 percents				
1.1.5 integers				
1.1.6 ratio and proportion				
1.2 The student will be able to count numbers.				
1.3 The student will be able to order and compare numbers.				
1.3.1 whole numbers	X	X		
1.3.2 fractions	X	X		
1.3.3 decimals	X	X		
1.3.4 percents				
1.3.5 integers				
1.4 The student will be able to read and write numbers.				
1.4.1 whole numbers	X	X		
1.4.2 fractions	X	X		
1.4.3 decimals	X	X		
1.4.4 integers				
1.5 The student will be able to demonstrate knowledge of place value.				
1.5.1 whole numbers	X	X		
1.5.2 decimals	X	X		
1.5.3 integers				
1.6 The student will be able to round numbers				
1.6.1 whole numbers				
1.6.2 fractions				
1.6.3 decimals	X	X		
1.6.4 integers				
1.7 The student will be able to recognize equivalent forms of fractions.	X	X		
1.8 The student will be able to identify and know the value of United States currency.				
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.				
2.1 The student will be able to perform basic operations on whole numbers.				
2.1.1 add	X	X		
2.1.2 subtract	X	X		

MATH CHECKLIST

COURSE GOALS	Metal Fabrication	Advanced Metals 1		
2.1.3 multiply	X	X		
2.1.4 divide	X	X		
2.1.5 find averages				
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms	X	X		
2.2.1.1 reduce fractions	X	X		
2.2.1.2 change mixed numbers to improper fractions	X	X		
2.2.2 add	X	X		
2.2.3 subtract	X	X		
2.2.4 multiply	X	X		
2.2.5 divide	X	X		
2.2.6 find averages				
2.2.8 change a fraction to an equivalent decimal	X	X		
2.2.9 change a fraction to an equivalent percent				
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction	X	X		
2.3.2 change a decimal to an equivalent percent				
2.3.3 add	X	X		
2.3.4 subtract	X	X		
2.3.5 multiply	X	X		
2.3.6 divide	X	X		
2.3.7 find averages				
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction				
2.4.2 change a percent to an equivalent decimal				
2.4.3 find a percent of a number				
2.4.4 find what percent one number is of another				
2.4.5 find a number when the percent of it is given				
2.5 The student will be able to solve ratio and proportion problems.				

MATH CHECKLIST

COURSE GOALS	Metal Fabrication	Advanced Metals I		
2.5.1 determine the ratio between two given quantities				
2.5.2 find the fourth term of a proportion when three terms are given				
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables	X	X		
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add				
2.7.2 subtract				
2.7.3 multiply				
2.7.4 divide				
2.7.5 find averages				
2.12 The student will be able to perform basic operations on variables and algebraic expressions.				
2.12.1 have an awareness of variables	X	X		
2.12.2 write and explain algebraic expressions using variables				
2.12.3 simplify by combining similar terms				
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols				
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents				
2.15.6 read, write and explain numbers using scientific notation				
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations				
2.18.2 commutative				
2.18.3 associative				
2.18.4 distributive				

MATH CHECKLIST

COURSE GOALS	Metal Fabrication	Advanced Metals I		
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.				
3.1.1 identify units of time		X		
3.1.2 tell time				
3.1.2.1 use concepts of time		X		
3.1.3 figure elapsed time		X		
3.1.4 make conversions with units of time		X		
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length				
3.2.2 metric system		X		
3.2.3 English system	X	X		
3.2.4 read a ruler	X	X		
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system	X	X		
3.3.4 weigh an object				
3.4 The student will know and use units of volume.				
3.4.2 metric system				
3.4.3 English system	X	X		
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius				
3.5.2 Fahrenheit	X	X		
3.6 The student will know and use units of angle measurement.				
3.6.1 different angle measures				
3.6.1.1 degrees		X		
3.6.2 measure an angle		X		
3.6.2.1 protractor		X		
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.		X		

MATH CHECKLIST

COURSE GOALS	Metal Fabrication	Advanced Metals I		
4.3.1 identify and name an angle		X		
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon		X		
4.7.3 circumference of a circle		X		
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure	X	X		
4.8.2 polygon				
4.8.2.1 square	X	X		
4.8.2.2 rectangle	X	X		
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.	X	X		
5.2 The student will be able to identify appropriate uses of calculators.	X	X		
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X		
6.2 The student will be able to guess, check and refine.	X	X		
6.3 The student will be able to look for a pattern.				
6.4 The student will be able to make a systematic list.	X	X		
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.	X	X		
6.6 The student will be able to eliminate possibilities.	X	X		
6.7 The student will be able to devise a simpler problem.				
6.8 The student will be able to work backward.	X	X		
6.9 The student will be able to evaluate the solution.	X	X		
6.10 The student will be able to communicate strategies used when solving problems.				
6.11 The student will be able to know that problems may have multiple solutions or no solutions.				

MATH CHECKLIST

COURSE GOALS	Metal Fabrication	Advanced Metals I		
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.				
7.2 The student will be able to estimate measurements.				
7.3 The student will be able to estimate computations.				
7.4 The student will be able to recognize reasonableness of results.	X	X		
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X		
8.2 The student will be able to construct tables, charts, and graphs.				
8.3 The student will be able to interpret tables, charts, and graphs.	X	X		
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.	X	X		
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.	X	X		
10.2 The student will be able to solve problems involving money.	X	X		
10.3 The student will be able to solve problems involving measurement.	X	X		
10.4 The student will be able to solve problems involving geometric concepts.		X		
10.5 The student will be able to solve problems involving numerical information in a variety of forms.	X	X		
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X	X		

ALTERNATIVE MATH CREDIT: ELECTRONICS

The following are proposed sequences of electronics that satisfy the district's guidelines for alternative credit.

1. Electronics I - Electronics II

2. Intro to Electronics - Electronics I - and a minimum of one semester from an approved vocational cluster

We recommend the above sequences be accepted as an alternative to one semester of math credit.

Dave Hudson
Bob Hill
Joanne Alford

INDED1:alt credits #15-88 j

MATH CHECKLIST

COURSE GOALS	Intro to Electronics	Electronics I	Electronics II	
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers	X	X	X	
1.1.2 fractions	X	X	X	
1.1.3 decimals	X	X	X	
1.1.4 percents	X	X	X	
1.1.5 integers				
1.1.6 ratio and proportion			X	
1.2 The student will be able to count numbers.				
1.3 The student will be able to order and compare numbers.				
1.3.1 whole numbers	X	X	X	
1.3.2 fractions			X	
1.3.3 decimals	X	X	X	
1.3.4 percents		X	X	
1.3.5 integers		X	X	
1.4 The student will be able to read and write numbers.				
1.4.1 whole numbers				
1.4.2 fractions				
1.4.3 decimals				
1.4.4 integers				
1.5 The student will be able to demonstrate knowledge of place value.				
1.5.1 whole numbers		X	X	
1.5.2 decimals	X	X	X	
1.5.3 integers		X	X	
1.6 The student will be able to round numbers				
1.6.1 whole numbers				
1.6.2 fractions				
1.6.3 decimals		X	X	
1.6.4 integers				
1.7 The student will be able to recognize equivalent forms of fractions.				
1.8 The student will be able to identify and know the value of United States currency.				
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.				
2.1 The student will be able to perform basic operations on whole numbers.				
2.1.1 add	X	X	X	
2.1.2 subtract	X	X	X	

MATH CHECKLIST

COURSE GOALS	Intro to Electronics	Electronics I	Electronics II	
2.1.3 multiply	X	X	X	
2.1.4 divide	X	X	X	
2.1.5 find averages			X	
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms				
2.2.1.1 reduce fractions				
2.2.1.2 change mixed numbers to improper fractions				
2.2.2 add			X	
2.2.3 subtract				
2.2.4 multiply			X	
2.2.5 divide			X	
2.2.6 find averages				
2.2.8 change a fraction to an equivalent decimal	X	X	X	
2.2.9 change a fraction to an equivalent percent	X	X	X	
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction			X	
2.3.2 change a decimal to an equivalent percent	X	X	X	
2.3.3 add		X	X	
2.3.4 subtract		X	X	
2.3.5 multiply		X	X	
2.3.6 divide		X	X	
2.3.7 find averages				
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction			X	
2.4.2 change a percent to an equivalent decimal			X	
2.4.3 find a percent of a number			X	
2.4.4 find what percent one number is of another				
2.4.5 find a number when the percent of it is given				
2.5 The student will be able to solve ratio and proportion problems.				

MATH CHECKLIST

COURSE GOALS	Intro to Electronics	Electronics I	Electronics II	
2.5.1 determine the ratio between two given quantities				
2.5.2 find the fourth term of a proportion when three terms are given			X	
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables		X	X	
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add		X	X	
2.7.2 subtract		X	X	
2.7.3 multiply		X	X	
2.7.4 divide		X	X	
2.7.5 find averages		X		
2.12 The student will be able to perform basic operations on variables and algebraic expressions.				
2.12.1 have an awareness of variables	X	X	X	
2.12.2 write and explain algebraic expressions using variables	X	X	X	
2.12.3 simplify by combining similar terms		X	X	
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols		X	X	
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents		X	X	
2.15.6 read, write and explain numbers using scientific notation	X	X	X	
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations				
2.18.2 commutative				
2.18.3 associative				
2.18.4 distributive				

MATH CHECKLIST

COURSE GOALS	Intro to Electronics	Electronics I	Electronics II	
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.				
3.1.1 identify units of time		X	X	
3.1.2 tell time				
3.1.2.1 use concepts of time		X	X	
3.1.3 figure elapsed time		X	X	
3.1.4 make conversions with units of time		X	X	
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length	X	X	X	
3.2.2 metric system		X	X	
3.2.3 English system				
3.2.4 read a ruler				
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system				
3.3.4 weigh an object				
3.4 The student will know and use units of volume.				
3.4.2 metric system				
3.4.3 English system				
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius				
3.5.2 Fahrenheit				
3.6 The student will know and use units of angle measurement.				
3.6.1 different angle measures				
3.6.1.1 degrees		X	X	
3.6.2 measure an angle				
3.6.2.1 protractor				
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.		X	X	

MATH CHECKLIST

COURSE GOALS	Intro to Electronics	Electronics I	Electronics II	
4.3.1 identify and name an angle				
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon				
4.7.3 circumference of a circle				
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure				
4.8.2 polygon				
4.8.2.1 square				
4.8.2.2 rectangle				
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.		X	X	
5.2 The student will be able to identify appropriate uses of calculators.		X	X	
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X	X	
6.2 The student will be able to guess, check and refine.	X	X	X	
6.3 The student will be able to look for a pattern.	X	X	X	
6.4 The student will be able to make a systematic list.	X	X	X	
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.	X	X	X	
6.6 The student will be able to eliminate possibilities.	X	X	X	
6.7 The student will be able to devise a simpler problem.	X	X	X	
6.8 The student will be able to work backward.		X	X	
6.9 The student will be able to evaluate the solution.	X	X	X	
6.10 The student will be able to communicate strategies used when solving problems.	X	X	X	
6.11 The student will be able to know that problems may have multiple solutions or no solutions.	X	X	X	

MATH CHECKLIST

COURSE GOALS	Intro to Electronics	Electronics I	Electronics II	
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.				
7.2 The student will be able to estimate measurements.		X	X	
7.3 The student will be able to estimate computations.	X	X	X	
7.4 The student will be able to recognize reasonableness of results.	X	X	X	
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X	X	
8.2 The student will be able to construct tables, charts, and graphs.	X	X	X	
8.3 The student will be able to interpret tables, charts, and graphs.	X	X	X	
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.	X	X	X	
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.	X	X	X	
10.2 The student will be able to solve problems involving money.	X	X	X	
10.3 The student will be able to solve problems involving measurement.	X	X	X	
10.4 The student will be able to solve problems involving geometric concepts.		X	X	
10.5 The student will be able to solve problems involving numerical information in a variety of forms.	X	X	X	
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X	X	X	

Voc/Tech Math Topic List

1) Simple Interest
2) Compound Interest
3) Payroll
4) Mark up - mark down
5) Budgeting
6) Banking
7) Taxes
8) Depreciation
9) Measurement
10) Making Change
11) Loans
12) Consumer buying
13) Insurance
14) Meters & gauges
15) Road maps
16) Tables & charts & graphs
17) Math conversions
18) Metric numbers
19) Scientific notation
20) Basic Algebra skills

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Recommended Alternative Math Credits

This committee recommends the following sequences of business classes be accepted as an alternative to one semester Math credit:

1) Accounting I - Accounting II
2) Accounting I - Businesses Machines & Business Management

Enclosed is a checklist of math goals and topics that are taught in the business classes. This list verifies that these business classes meet the requirements as established by the district guidelines.

We also recommend that the Marketing classes and Office Procedures class be considered in sequence with other classes for alternative credits.

Bob Hill
Pat Gump
Sue Jensen
Joanne Alford

INDED1:alt credits #15-88 j

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II	Business Machines	Business Management
1. THE STUDENT WILL BE ABLE TO DEMONSTRATE THE KNOWLEDGE OF BASIC NUMERATION CONCEPTS AND SKILLS.				
1.1 The student will be able to understand the meaning of numbers.				
1.1.1 whole numbers	X	X		
1.1.2 fractions	X	X	X	X
1.1.3 decimals	X	X	X	X
1.1.4 percents	X	X	X	X
1.1.5 integers				
1.1.6 ratio and proportion		X		
1.2 The student will be able to count numbers.				
1.3 The student will be able to order and compare numbers.				
1.3.1 whole numbers				
1.3.2 fractions				
1.3.3 decimals				
1.3.4 percents				
1.3.5 integers				
1.4 The student will be able to read and write numbers.				
1.4.1 whole numbers	X	X	X	
1.4.2 fractions	X	X	X	
1.4.3 decimals	X	X	X	
1.4.4 integers				
1.5 The student will be able to demonstrate knowledge of place value.				
1.5.1 whole numbers	X	X	X	X
1.5.2 decimals	X	X	X	X
1.5.3 integers				
1.6 The student will be able to round numbers				
1.6.1 whole numbers				
1.6.2 fractions				
1.6.3 decimals				
1.6.4 integers	X	X	X	X
1.7 The student will be able to recognize equivalent forms of fractions.	X	X	X	X
1.8 The student will be able to identify and know the value of United States currency.	X	X	X	X
2. THE STUDENT WILL BE ABLE TO USE COMPUTATIONAL SKILLS.				
2.1 The student will be able to perform basic operations on whole numbers.				
2.1.1 add				
2.1.2 subtract				

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MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II	Business Machines	Business Management
2.1.3 multiply				
2.1.4 divide				
2.1.5 find averages		X		X
2.2 The student will be able to perform basic operations on fractions.				
2.2.1 find equivalent forms				
2.2.1.1 reduce fractions	X	X	X	
2.2.1.2 change mixed numbers to improper fractions				
2.2.2 add				
2.2.3 subtract				
2.2.4 multiply				
2.2.5 divide				
2.2.6 find averages				
2.2.8 change a fraction to an equivalent decimal	X	X	X	X
2.2.9 change a fraction to an equivalent percent	X	X	X	X
2.3 The student will be able to perform basic operations on decimals.				
2.3.1 change a decimal to an equivalent fraction				
2.3.2 change a decimal to an equivalent percent	X	X	X	X
2.3.3 add	X	X		
2.3.4 subtract	X	X		
2.3.5 multiply	X	X		
2.3.6 divide	X	X		
2.3.7 find averages				X
2.4 The student will be able to solve problems involving percents.				
2.4.1 change a percent to an equivalent fraction				
2.4.2 change a percent to an equivalent decimal	X	X	X	X
2.4.3 find a percent of a number	X	X	X	X
2.4.4 find what percent one number is of another	X	X	X	X
2.4.5 find a number when the percent of it is given				
2.5 The student will be able to solve ratio and proportion problems.				

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II	Business Machines	Business Management
2.5.1 determine the ratio between two given quantities	X	X		
2.5.2 find the fourth term of a proportion when three terms are given				
2.6 The student will be able to evaluate formulas.				
2.6.1 evaluate a formula, given the values for the variables	X	X	X	
2.7 The student will be able to perform basic operations on integers.				
2.7.1 add				
2.7.2 subtract				
2.7.3 multiply				
2.7.4 divide				
2.7.5 find averages				
2.12 The student will be able to perform basic operations on variables and algebraic expressions.				
2.12.1 have an awareness of variables	X	X	X	X
2.12.2 write and explain algebraic expressions using variables	X	X		
2.12.3 simplify by combining similar terms				
2.13 The student will be able to write mathematical equations.				
2.13.1 change a mathematical equation in word form to one using symbols	X	X	X	X
2.15 The student will be able to perform basic operations using exponents.				
2.15.1 read, write and explain exponents				
2.15.6 read, write and explain numbers using scientific notation				
2.16 The student will be able to factor.				
2.16.1 numbers				
2.16.2 find the greatest common factor of numbers or numerical expressions				
2.16.3 find the lowest common multiple of numbers or numerical expressions				
2.18 The student will be able to use the basic properties of arithmetic.				
2.18.1 order of operations				
2.18.2 commutative				
2.18.3 associative				
2.18.4 distributive				

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II	Business Machines	Business Management
3. THE STUDENT WILL BE ABLE TO USE BASIC MEASURING SKILLS.				
3.1 The student will know and use units of time.				
3.1.1 identify units of time				
3.1.2 tell time				
3.1.2.1 use concepts of time				
3.1.3 figure elapsed time	X	X	X	
3.1.4 make conversions with units of time	X	X	X	
3.2 The student will know and use units of length.				
3.2.1 non-standard units of length				
3.2.2 metric system				
3.2.3 English system				
3.2.4 read a ruler				
3.3 The student will know and use units of mass and weight.				
3.3.2 metric system				
3.3.3 English system				
3.3.4 weigh an object				
3.4 The student will know and use units of volume.				
3.4.2 metric system				
3.4.3 English system				
3.4.4 determine the volume of an object				
3.5 The student will know and use temperature scales.				
3.5.1 Celsius				
3.5.2 Fahrenheit				
3.6 The student will know and use units of angle measurement.				
3.6.1 different angle measures				
3.6.1.1 degrees				
3.6.2 measure an angle				
3.6.2.1 protractor				
4. THE STUDENT WILL KNOW GEOMETRIC CONCEPTS.				
4.1 The student will be able to identify, illustrate and use spatial concepts and relationships.				
4.1.1 identify, copy, illustrate and construct open and closed one, two, and three-dimensional figures				
4.1.2 recognize and use symmetry				
4.3 The student will be able to recognize and apply relationships and properties of angles.				

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II	Business Machines	Business Management
4.3.1 identify and name an angle				
4.7 The student will be able to determine the boundary of geometric figures.				
4.7.1 given figure				
4.7.2 perimeter of a polygon				
4.7.3 circumference of a circle				
4.8 The student will be able to determine the area of geometric figures.				
4.8.1 given figure				
4.8.2 polygon				
4.8.2.1 square				
4.8.2.2 rectangle				
5. THE STUDENT WILL BE ABLE TO USE CALCULATORS.				
5.1 The student will be able to follow the steps to enter information on a calculator.	X	X	X	X
5.2 The student will be able to identify appropriate uses of calculators.	X	X	X	X
6. THE STUDENT WILL BE ABLE TO USE PROBLEM-SOLVING SKILLS AND STRATEGIES.				
6.1 The student will be able to analyze and define the problem.	X	X	X	X
6.2 The student will be able to guess, check and refine.	X	X		X
6.3 The student will be able to look for a pattern.	X	X		X
6.4 The student will be able to make a systematic list.	X	X	X	X
6.5 The student will be able to make and use a drawing, diagram, model, table, or graph.	X	X	X	X
6.6 The student will be able to eliminate possibilities.	X	X		X
6.7 The student will be able to devise a simpler problem.	X	X		X
6.8 The student will be able to work backward.	X	X	X	X
6.9 The student will be able to evaluate the solution.	X	X	X	X
6.10 The student will be able to communicate strategies used when solving problems.	X	X	X	X
6.11 The student will be able to know that problems may have multiple solutions or no solutions.				

MATH CHECKLIST

COURSE GOALS	Accounting I	Accounting II	Business Machines	Business Management
7. THE STUDENT WILL BE ABLE TO USE ESTIMATION AND APPROXIMATION SKILLS AND RECOGNIZE REASONABLENESS OF RESULTS.				
7.1 The student will be able to use number concepts to estimate quantity.				
7.2 The student will be able to estimate measurements.				
7.3 The student will be able to estimate computations.				
7.4 The student will be able to recognize reasonableness of results.	X	X	X	X
8. THE STUDENT WILL BE ABLE TO USE NUMERICAL INFORMATION DISPLAYED IN A VARIETY OF GRAPHIC FORMS.				
8.1 The student will be able to read tables, charts, and graphs.	X	X	X	X
8.2 The student will be able to construct tables, charts, and graphs.	X	X	X	X
8.3 The student will be able to interpret tables, charts, and graphs.	X	X	X	X
9. THE STUDENT WILL KNOW HOW MATHEMATICS IS USED TO MAKE PREDICTIONS.				
9.1 The student will be able to make predictions based upon collected data.	X	X		X
10. THE STUDENT WILL BE ABLE TO APPLY MATH TO EVERYDAY SITUATIONS.				
10.1 The student will be able to select appropriate numbers and number operations to solve real world problems.	X	X	X	X
10.2 The student will be able to solve problems involving money.	X	X	X	X
10.3 The student will be able to solve problems involving measurement.				
10.4 The student will be able to solve problems involving geometric concepts.				
10.5 The student will be able to solve problems involving numerical information in a variety of forms.	X	X	X	X
10.6 The student will be able to recognize ways that math concepts and skills are useful to themselves and others.	X	X	X	X