

Wallenpaupack Area School District Planned Course Curriculum Guide

Department:

Math

Name of Course:

CTE Consumer Math

Course Description:

Consumer Math CTE uses practical application of mathematical principles to understand and manage finances in both personal and business settings.

Initial Creation Date (if applicable) and Revision Dates:

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Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT 2: Net Income	TIMEFRAME: 1-2 weeks

PA COMMON CORE/NATIONAL STANDARDS:	
<u>Math</u>	
CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.	
CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.	
<u>Personal Finance</u>	
17.2.9-12.F – Explain the impact of employee benefits (e.g. health insurance, retirement savings plans, education reimbursement programs) on an individual’s finances.	
17.2.9-12.H – Calculate the impact of taxes and payroll deductions on income.	
UNIT OBJECTIVES (SWBATS):	
Students will be able to:	
<ul style="list-style-type: none"> • Take their gross pay and make necessary deductions to calculate their net pay. 	
INSTRUCTIONAL STRATEGIES/ACTIVITIES:	
<ul style="list-style-type: none"> • Teacher generated worksheets • Look at US federal tax rates • Look at average medical costs in United States 	
ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):	
<ul style="list-style-type: none"> • Quiz/Test • Homework • Class participation • Teacher observations 	
DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):	
<ul style="list-style-type: none"> • Create an Excel spread sheet that calculates deductions when given parameters. • Take a personal paycheck and check the calculations for Social Security (SS), Medicare, Federal Income Tax (FIT), and state and local taxes. 	
RESOURCES (Technology Based Resources, Text Resources, etc.):	
<ul style="list-style-type: none"> • Schoology pages on FIT tables, medical costs and Social Security. 	
KEY VOCABULARY:	
<ul style="list-style-type: none"> • Federal Income Tax (FIT) • Social Security • Medicare 	<ul style="list-style-type: none"> • Health insurance • Gross pay • Net pay

Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT 13: Personnel	TIMEFRAME: 2 weeks

<p>PA COMMON CORE/NATIONAL STANDARDS:</p> <p><u>Math</u></p> <p>CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.</p> <p>CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.</p> <p><u>English</u></p> <p>CC.1.5.11-12.G – Demonstrate command of the conventions of standard English when speaking based on Grades 11-12 level and content.</p> <p><u>Career Education and Work</u></p> <p>13.2.9-12.B – Use professional etiquette and observe social protocols when communicating verbally, nonverbally, and in writing.</p> <p>13.3.9-12.C – Incorporate feedback and personal reflection to evaluate success towards completing goals and determine a next course of action.</p> <p>13.4.9-12.A – Strategically market yourself as a job candidate.</p>
<p>UNIT OBJECTIVES (SWBATS):</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> • Calculate salaries using various methods (salary table, COL increase, etc.). • Calculate worker’s compensation costs. • Calculate unemployment insurance costs. • Interview a prospective employee with appropriate questions.
<p>INSTRUCTIONAL STRATEGIES/ACTIVITIES:</p> <ul style="list-style-type: none"> • Teacher generated worksheets • Create questions and then hold an interview for a position in their company. • Discuss the many employee benefits and their importance to each individual.
<p>ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):</p> <ul style="list-style-type: none"> • Create interview questions and conduct an interview • Quiz/Test • Homework • Class participation • Teacher observations
<p>DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):</p> <ul style="list-style-type: none"> • Students will contact local businesses to see what benefits they offer their workers and report findings to class. • Students will make a list of hazards in their field that could affect the Worker’s Compensation rates of their potential business.
<p>RESOURCES (Technology Based Resources, Text Resources, etc.):</p> <ul style="list-style-type: none"> • Schoology pages on Hiring Costs, Inflation Facts, Employee Benefits, Worker’s Compensation Class Codes for PA

KEY VOCABULARY:

- Cost of living (COL)
- Merit pay
- Inflation
- Worker's compensation
- Unemployment insurance
- Percent of benefits

Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT 14: Production	TIMEFRAME: 2-3 weeks

PA COMMON CORE/NATIONAL STANDARDS:

Math

CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.

CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.

CC.2.2.HS.C.5 – Construct and compare linear, quadratic, and exponential models to solve problems.

CC.2.2.HS.C.6 - Interpret functions in terms of the situations they model.

CC.2.2.HS.D.3 – Extend the knowledge of arithmetic operations and apply to polynomials.

CC.2.2.HS.D.8 – Apply inverse operations to solve equations or formulas for a given variable.

CC.2.2.HS.D.9 – Use reasoning to solve equations and justify the solution method.

CC.2.2.HS.D.10 – Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.

UNIT OBJECTIVES (SWBATS):

Students will be able to:

- Calculate a prime cost of an item.
- Calculate a break even point and a profit by comparing revenue and costs.
- Calculate the percent defective in a given time period.
- Explain the usefulness of a time study, and how to calculate percent of time.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Teacher generated worksheets
- Review of steps to solve equations in 1 variable (for break-even point).
- Students will calculate the costs of products with different pricing to determine which is cheaper at different usage points.

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Quiz/Test
- Homework
- Class participation
- Teacher observations

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):

- Students will do a time study of a task in their shop and present it to the class.
- Research a defect in the field that you are in that impacted the company producing that product.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Graphing calculator used to find break-even point using graphing method.
- Schoology page of formulas

KEY VOCABULARY:

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|--------------------|---------------------|
| • Prime cost | • Percent defective |
| • Revenue | • Time study |
| • Break-even point | |

Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT 15: Purchasing	TIMEFRAME: 1-2 weeks

PA COMMON CORE/NATIONAL STANDARDS:	
<u>Math</u>	
CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.	
CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.	
CC.2.1.HS.D.8 – Apply inverse operations to solve equations or formulas for a given variable.	
UNIT OBJECTIVES (SWBATS):	
Students will be able to:	
<ul style="list-style-type: none"> • Calculate for missing amounts of list price, trade discount, trade discount rate, and net price. • Calculate a chain of discounts. 	
INSTRUCTIONAL STRATEGIES/ACTIVITIES:	
<ul style="list-style-type: none"> • Teacher generated worksheets • Spreadsheets with 2 of the 4 items filled in. 	
ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):	
<ul style="list-style-type: none"> • Quiz/Test • Homework • Class participation • Teacher observations 	
DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):	
<ul style="list-style-type: none"> • Students will find a local employer in their field, and ask about the trade discounts that they receive. 	
RESOURCES (Technology Based Resources, Text Resources, etc.):	
<ul style="list-style-type: none"> • Schoology pages of formulas 	
KEY VOCABULARY:	
<ul style="list-style-type: none"> • Trade discount • Trade discount rate 	<ul style="list-style-type: none"> • Chain discount • Complementary rate

Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT 16: Sales	TIMEFRAME: 1-2 weeks

<p>PA COMMON CORE/NATIONAL STANDARDS:</p> <p><u>Math</u></p> <p>CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.</p> <p>CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.</p> <p>CC.2.1.HS.D.8 – Apply inverse operations to solve equations or formulas for a given variable.</p> <p>CC.2.1.7.D.1 - Analyze, recognize, and represent proportional relationships and use them to solve real-world and mathematical problems.</p>
<p>UNIT OBJECTIVES (SWBATS):</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> • Find missing amounts of markup, markup rate, list price and net profit.
<p>INSTRUCTIONAL STRATEGIES/ACTIVITIES:</p> <ul style="list-style-type: none"> • Teacher generated worksheets • Spreadsheets with various columns filled in
<p>ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):</p> <ul style="list-style-type: none"> • Create a logo for a business • Quiz/Test • Homework • Class participation • Teacher observations
<p>DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):</p> <ul style="list-style-type: none"> • Students will use the internet to research the markup rates of various products that we buy on a regular basis.
<p>RESOURCES (Technology Based Resources, Text Resources, etc.):</p> <ul style="list-style-type: none"> • Schoology pages of formulas • Review of Algebra (proportions)
<p>KEY VOCABULARY:</p> <ul style="list-style-type: none"> • Markup • Markup rate

Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT 17: Marketing	TIMEFRAME: 2-3 weeks

PA COMMON CORE/NATIONAL STANDARDS:

Math

CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.

CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.

CC.2.2.HS.C.5 – Construct and compare linear, quadratic, and exponential models to solve problems.

CC.2.2.HS.C.6 – Interpret functions in terms of the situations they model.

CC.2.2.HS.D.7 – Create and graph equations or inequalities to describe numbers or relationships.

CC.2.4.HS.B.3 – Analyze linear models to make interpretations based on the data.

CC.2.4.HS.B.5 – Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.

UNIT OBJECTIVES (SWBATS):

Students will be able to:

- Use data from an opinion survey and calculate questions based on that survey.
- Use a sample to calculate sales potential in a given population.
- Project sales using a line of best fit both by hand and using a graphing calculator.
- Understand and be able to explain the pros and cons of various types of advertising.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Teacher generated worksheets
- Graph sales projections

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Create an opinion survey for their company
- Create an advertisement for their company
- Create a line of best fit by hand using graph paper and a ruler
- Quiz/Test
- Homework
- Class participation
- Teacher observations

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):

- Students will look at sales projects that are not linear.
- Students will create an opinion survey for a local business in their field.
- Students will research local advertising costs for television, newspaper, radio or billboard.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Schoology pages on Opinion Survey Types and Advertising
- Graphing calculator (Line of best fit/Linear regression)

KEY VOCABULARY:

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| • Opinion survey | • Line of best fit |
| • Sample | • Market share |
| • Population | • Proportion |

Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT 18-20: Buildings and Equipment	TIMEFRAME: 1-2 weeks

PA COMMON CORE/NATIONAL STANDARDS:	
Math	
<p>CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.</p> <p>CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.</p> <p>CC.2.1.HS.F.4 – Use units as a way to understand problems and to guide the solution of multi-step problems.</p> <p>CC.2.2.HS.C.6 – Interpret functions in terms of the situations they model.</p> <p>CC.2.3.HS.A.12 – Explain volume formulas and use them to solve problems.</p> <p>CC.2.3.HS.A.14 – Apply geometric concepts to model and solve real world problems.</p>	
UNIT OBJECTIVES (SWBATS):	
Students will be able to:	
<ul style="list-style-type: none"> • Calculate storage space using volume. • Calculate the area of a shape and use that to calculate building rental costs. • Calculate straight line depreciation. 	
INSTRUCTIONAL STRATEGIES/ACTIVITIES:	
<ul style="list-style-type: none"> • Teacher generated worksheets • Find area and volume of various figures 	
ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):	
<ul style="list-style-type: none"> • Packet of area/volume problems relating to specific shop • Quiz/Test • Homework • Class participation • Teacher observations 	
DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):	
<ul style="list-style-type: none"> • Students will find area and volume of shapes that need to be divided into smaller ones, or ones that need to be subtracted from the bigger ones. 	
RESOURCES (Technology Based Resources, Text Resources, etc.):	
<ul style="list-style-type: none"> • Schoology pages of formulas for area and volume 	
KEY VOCABULARY:	
<ul style="list-style-type: none"> • Area • Volume • Building rental costs 	<ul style="list-style-type: none"> • Storage space • Depreciation

Wallenpaupack Area School District Curriculum	
COURSE: CTE Consumer Math	GRADE/S: 12
UNIT: Senior Project	TIMEFRAME: 2 additional weeks

<p>PA COMMON CORE/NATIONAL STANDARDS:</p> <p><u>Math</u></p> <p>CC.2.1.HS.F.2 – Apply properties of rational and irrational numbers to solve real world mathematical problems.</p> <p>CC.2.1.HS.F.3 – Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.</p> <p><u>English</u></p> <p>CC.1.5.11-12.G – Demonstrate command of the conventions of standard English when speaking based on Grades 11-12 level and content.</p> <p><u>Career Education and Work</u></p> <p>13.1.9.12.A – Analyze the relationship between career choices and career preparation opportunities to choose a path.</p> <p>13.2.9-12.B – Use professional etiquette and observe social protocols when communicating verbally, nonverbally, and in writing.</p> <p>13.3.9-12.C – Incorporate feedback and personal reflection to evaluate success towards completing goals and determine a next course of action.</p> <p>13.4.9-12.D – Evolve career plan to enact additional action steps that may include, but not be limited to:</p> <ul style="list-style-type: none"> ➤ Electives ➤ Extracurricular activities ➤ Coursework ➤ Career interests ➤ Strengths and abilities ➤ Educational and training opportunities ➤ Work-based learning ➤ Industry-recognized credentials
<p>UNIT OBJECTIVES (SWBATS):</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> • Calculate the cost of buying/renting space to run their business. • Calculate the costs of equipment to run their business. • Calculate the cost of employees and their benefits to run their business. • Create financial goals for their future. • Map out their future educational plans.
<p>INSTRUCTIONAL STRATEGIES/ACTIVITIES:</p> <ul style="list-style-type: none"> • Present students with a mortgage calculator, as well as current rates.
<p>ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):</p> <ul style="list-style-type: none"> • Presentation of Senior Project • Calculations within their senior project
<p>DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):</p> <ul style="list-style-type: none"> • Students will create a website and link all of the created items in the senior project to the website.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Mortgage calculator website
- Health insurance website

KEY VOCABULARY:

- Mortgage calculator
- Equipment associated with their field