MA 2E	Mathematics Embedded Credit
Cape Career & Technology Center	**Last Update: April 2017**
Topic: Decimals, Fractions, Percents	**Focus: Applications – Personal / Business Finance**

Show-Me Standards: MA1, MA5, G4-8, G3-8	MO Grade Level Expectations: N2B6, N2B7, N2B8, N2C9, N1B5, N1B6	NCTM Standards: 2A, 3A, 3B, 18A, 18B, 18C, 18D, 20A, 20B, 22A, 22B, 22C

OBJECTIVE: Students will use information they have learned about decimals, fractions and percents to solve personal and business finance questions.

Introduction:
Applications of everyday problems of money are essential for success in the real world. Money is utilized in the purchase of merchandise, payment of labor and/or services and many other aspects of personal/business finance. Banks specialize in money matters and the business leader of today must be able to show good sense in personal and business finance to attract the assistance of these lending and savings institutions.

Definitions:
Gross Income: The money earned prior to payroll deductions and calculated by number of hours worked times the hourly rate. Can also be calculated as a salary in which case it is the yearly sum divided by the number of pays per year.
Net Income: The amount of money received after payroll deductions are withheld. The number of deductions is dependent on the individual's employment paperwork and/or benefits options.
Property Tax: A tax on the ownership of property – real estate and/or personal property.
Sales Tax: A tax placed, by the government, on goods and/or services.
Interest: Percentage of a sum of money that is saved or loaned. In a savings situation, the interest is paid to the individual. In a loan situation, the interest is paid to the lending institution.
Principal: Original amount of money loaned, or deposited, on which the interest is paid.
Interest Rate: The percentage applied to the principal.
Time: The duration, or period, for which the interest is compounding.
Simple Interest: Interest applied only to the principal of a savings account, or loan.
Annual Percentage Rate ("APR"): The average annual interest divided by the outstanding principal.
Retail Price: The amount charged to consumers in the retail stores.
Wholesale Cost: The price a store pays to buy an item.
Mark-Up: The amount the retail business adds to the wholesale cost to help in covering operating expenses and ensure a profit.
Discount: The amount subtracted from the retail price resulting in a lower price for sale.

WORD PROBLEMS: (For the following problems, refer to **FORMULAS** in Lesson 1E)

1. What is the cost of 32.5 gallons of gasoline when the pump price is listed as $1.759 per gallon?

2. If Travis bought two books to help him study for his MOUS certification test at a cost of $19.95 each, how much change would he receive from a $50 bill with 7% sales tax?

3. Using the PAY STUB information listed below, determine the total percent of deductions for the pay period. All items are a percentage of gross pay.

Gross Income	Federal Tax	FICA	Retirement
$430.00	$64.35	$35.04	$8.58

4. What is the weekly gross pay of a machinist earning $14.75 per hour working 48 hours per week? (Overtime: paid at time and a half for hours over 40.)

5. Plywood costs $15.50 per sheet. When 4 sheets are purchased, the total cost is $66.00, including tax. What is the percentage rate of sales tax?

6. With a property tax rate of 43 mills ($1 per $1,000 of value), what is the yearly tax on a house valued at $86,000?

7. How long must a $1,500 investment be held to earn $225 given a simple interest rate of 10%?

8. What is the total interest carried on a savings account in 18 months with 2% interest, compounded semiannually, and a starting balance of $1,000?

9. What is the estimated monthly payment for the following loan (Round to the nearest dollar.)? LOAN: $12,000, APR: 11.5%, TIME: 4 years.

10. What is the estimated monthly payment for the following loan (Round to the nearest dollar.)? LOAN: $8,000, APR: 7 ½ %, TIME: 5 years.