Consumer Mathematics and Incarcerated Youths:
An Option for Educating some of America's Underserved Children

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Abstract

The curriculum project contained herein is designed around educating youth, particularly incarcerated youth, in obtaining a level of mastery of basic financial literacy and consumer mathematics. The goal is to provide the necessary mathematical reasoning tools to survive on one's own. The lack of educational opportunities and resources available to incarcerated youths necessitated the creation of basic consumer math lessons to assist an educator in providing general mathematical understanding of basic concepts and reasoning of consumer mathematics. There are five lessons included in this cuuriculum and answer keys are provided at the end. All lessons are in conjunction with New York state standards in both mathematics and social studies.

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Introduction

The current high school mathematics curriculum, as established by the Common Core State Standards (CCSS), and adopted by 41 states, including New York, claims that it prepares all students for college or career (Bomer and Maloch, 2011). Clearly, not all students have met these goals as many students continue to drop out of high school, and the school to prison pipeline has not diminished since 2010 when the CCSS was implemented nationally (Young-Aleibar, 2021). The current mathematics hierarchy of algebra, geometry and algebra II as outlined by the National Education Association's Committee of Ten in 1894 (NEA, 1894) is still in place in most schools across the United States. The viability of one system for all, especially regarding marginalized youth, points to the need for an alternate path for at-risk students that includes financial or real-life mathematics. Especially when considering the fact that the average incarcerated youth is up to 4 years below grade level for mathematics and has a reduced chance of graduating high school by upwards of 40% (Aizer and Doyle, 2013). Thus the question is posed: does following the Common Core Standards of mathematics make sense for this population? This curriculum project was thus developed from the believe that 17-19-year-olds with few high school credits could most benefit from practical courses like career and financial management and consumer mathematics.

Literature Review

The Common Core State Standards Initiative has been adopted by 41 states, the District of Columbia and several territories (Common Core, 2020) The standards listed for mathematics include algebra, geometry, modeling, and statistics. New York state's Next Generation Mathematics Learning Standards (2017) lists standards for algebra, geometry, and algebra II (NYSED, 2017). There are no standards for consumer math, business math or financial management. The focus of mathematics education is on the same three subjects that were introduced into America’s education system in the 1890’s (NEA, 1894). The question arises if the current triumvirate of algebra, geometry and algebra II is the best fit for the majority of high school students.

A brief survey of the mathematics courses offered in school districts in western NY found that many districts do not offer mathematics outside of those found in the Common Core Standards. Some of the districts offered a form of consumer, or financial, math but only as an option after completing 2 years of either algebra or geometry and with a passing grade on a Regents test. This adherence to current state standards does a dis-service to those students not headed toward a STEM career. The lack of education in practical math skills is prevalent across the region.

Public and state residential facilities in New York state that receive any governmental financial assistance must abide by NYSED guidelines to be accredited in the state (ED, 2020). This requires the facilities to provide math education in accordance with state guidelines. Since NYSED has adopted the Common Core Standards, this results in algebra, geometry and algebra II being offered in detention facilities. Since it is necessary to obtain three credits in math to graduate, these courses are the prevalent courses for state facilities.

While the numbers vary by state, the rate of high school graduation in the United States per the National Science Federation (2016) is approximately 80%. Of the nearly 3 million high school graduates, nearly 66% enter a two- or four-year college. Of these college entrants, about 23% enter a STEM field: biological and biomedical sciences, computer and information sciences, engineering and engineering technologies, mathematics and statistics, and physical sciences and science technologies (NSF). The National Center for Education Statistics (2019) estimates about 331,00 bachelor's degrees in STEM fields were awarded in 2016. This accounts for about 10% of high school graduates. The other 90% do not go into a field that has, at its core, the mathematics taught in high school.

The US Department of Education (2020) estimates that in 2018 there were 2.1 million high school dropouts. This number includes those who were not enrolled in school or had not earned either a diploma or equivalency credential such as a the graduate equivaency degree (GED, General Educational Development). While conservative estimates are from 5.8% to 12.6% of youth aged 15-19 are drop-outs, some studies show that number as high as 29% (Stone, 2004). Gootman (2006) suggests that one of the reasons for the rate of drop-outs, is falling behind in credits. Many juvenile offenders are repeat offenders; state studies have shown that the rearrest rates for youth within 1 year of release from an institution average 55 percent, while reincarceration and re-confinement rates during the same timeframe average 24 percent (Snyder and Sickmund 2006). The US Government (OJJDP, Office of Juvenile Justice and Delinquency Prevention) also reports that two-thirds of incarcerated youth never return to school upon release (Esthappan and Lee 2018). These numbers illustrate the fact that many youths are missing valuable time in school, getting further and further behind their peers. Steele et al (2016) in a meta-study of 18 studies found that between 30% and 50% of incarcerated youth have special education needs. They also found that average math skills were about 4 years behind those of average grade students. These combinations display students who are often working below grade level; in some cases, 4 and 5 years behind.

According to data prepared by the US Government, (OJJDP. Org 2020) there were approximately 37,500 youth between the ages of 12-18 held at juvenile facilities in 2018 (OJJDP,). While the age of these juveniles ranges from 12-17, recent initiatives have increased the age of incarceration in juvenile facilities to 19, allowing juvenile offenders to held at a juvenile facility past the age of 18 (Ny.gov). This count includes private, local, and state facilities. While this seems a large number, it is a reduction by over 60% from 2000. The Office of Juvenile Justice reports that the average stay for these youths was 114 days for committed residents and 23 days for those detained. As most of these youths are detained prior to incarceration, the average time spent is 137 days. 137 days is approximately 38% of a year, time which potentially would be spent in school. Burstein and Forsyth (2017) point out that incarceration in these facilities disrupts daily lives especially in regards to education and schooling. As many of these youths have experienced school failure and have poor attendance rates prior to incarceration (Forsyth, 2010), the expected grade level knowledge is generally not attained, with many youths behind their peers academically by as many as 4 years (Baltodano, 2005). (Gagnon et al., 2009) also state that approximately 40% of youth are classified with a disability. Combined, all this data points to youths inadequately prepared academically. (Katsiyannis and Archwametry, 1999) using the Woodcook-Johnson Psycho-Educational Battery Test for achievement found that most incarcerated youth score at the 7th grade math level.

A recent study from the National Council of Mathematics (2018) suggests a change in math curricula. The study advocates for 4 years of math, with the traditional algebra, geometry, algebra II courses and either advanced math such as calculus or practical math such as statistics, financial literacy, or data science (NCTM, 2018). While this study supports practical math, it does not advocate for an alternate pathway for those with limited skills or who, like incarcerated youth, have fallen through the cracks. While the Office for Juvenile Justice (2020) states the number of incarcerated youths is less than 1% of the number of high school graduates, when combined with the number of dropouts who leave school due to falling behind in credits or disillusionment with school, these numbers start to grow. Snyder and Sickman put the chance of recidivism at over 50%. In a study by Aizer and Doyle (2015), 40% of the youths who were incarcerated in secure facilities ended up in prison by the age of 25. Their findings also showed a direct correlation between incarceration and not finishing high school.

These students should not be forced to follow a mathematics guideline that does not speak to the reality of their situation. If these youths are not going to follow the traditional academic timeline, there should be an alternate pathway, one that has the blessing and support of the academic world. William Heard Kilpatrick, one of the nation's most influential education leaders said in 1925, "We have taught algebra and geometry to too many, not too few." (Tennebaum, 1951, as cited in A Brief History, 2020)). A truer statement has not been made nearly 100 years later.

Consumer Math Curriculum Design

Consumer math is not part of the traditional mathematics curriculum in public schools. Currently in New York state, there are no state standards for consumer math within mathematics. There is a section within the New York State Common Core Standards for Social Studies that provides a framework for 12th grade economics dealing with personal finance. These are listed under section 12.E1 and include 12.E1a-c. (12.E1a In making economic decisions in any role, individuals should consider the set of opportunities that they have, their resources (e.g., income and wealth), their preferences, and their ethics. **12.E1b** Sound personal financial (money management) practices take into account wealth and income, the present and the future, and risk factors when setting goals and budgeting for anticipated saving and spending. Cost-benefit analysis is an important tool for sound decision making. All financial investments carry with them varying risks and rewards that must be fully understood to make informed decisions. Greater rewards generally come with higher risks. **12.E1c** Managing personal finance effectively requires an understanding of the forms and purposes of financial credit, the effects of personal debt, the role and impact of interest, and the distinction between nominal and real returns. Predatory lending practices target and affect those who are least informed and can least afford such practices. Interest rates reflect perceived risk, so maintaining a healthy credit rating lowers the cost of borrowing). This framework is fairly limited in scope, dealing mainly with personal budgets. Understanding and using formulas for simple and compound interest, mortgages, and annuities, just to name but a few, are missing from this framework. This presents a challenge to consumer math teachers as there are no specific guidelines to follow. Teachers must create their own materials with no standards to follow, leading to great diversity in what is being taught. Fortunately, there are plenty of resources available online to assist in teaching a consumer math course. There are, however, *very limited resources* on how to teach this course to *incarcerated youths*.

Teaching in a secure facility (prison by any other name) brings many challenges that do not exist in a public or private school. One of the biggest instructional hurdles to overcome is the lack of student-used technology. In most facilities, only students who are in a technology or computer class has access to a computer. This also includes tablets and Chromebooks. The only computer interaction in a math classroom is through a Smartboard (if the classroom has one). This limits the opportunities the students have to do research on their own. When learning about the costs of leasing or renting an apartment, the onus falls on the teacher to do the research. As the students at a secure facility may come from a wide geographical area, they want to look at living opportunities near their home. This can mean looking at properties in ten different cities across the state. If the students had access to their own computers, this would not be a problem, however that is most likely not the case.

Teacher Resources

Thus, the lessons that follow provide a section of teacher resources. The following resources are provided to assist the teacher: sample budgets prefilled in for various cities/areas of NY state, average costs of utilities depending on geographical location and size/type of residence, expected cost of food, whether dining out or eating in for different eating style, costs of transportation in different areas of the state, etc. The forms and links are designed to assist the teacher with the research that typically accompany financial math lessons. The instructor may still need to adapt the information provided, dependent on their location and the cost of living in that specific area.

Topics and Lessons

The lesson provided in this curriculum project were designed around basic ideas that students may see in a consumer math course. They include making and understanding a budget; understanding wages and salary; creating a resume and knowing how to fill out a job application; the cost of borrowing money; and how interest affects the ability to borrow and save. Some lessons are split into two parts to provide more details. An important note for all lessons is the allotted timeframe. Also, these lessons, much like all lessons in a secure facility, do not have a homework component. The residents are typically not allowed to take materials from the classrooms. Likewise, there are no computers to use in their living quarters, nor access to pencils and paper due to security reasons. Another important point is that the lessons included were generated around life-lessons. For example, knowing how to create a budget and read a paystub are concepts that students will use for the rest of their life. As such, teachers should work towards mastery. If extra time is required for balancing a checking account, then that time should be allotted.

Time Flexibility

Lastly, teaching in a secure facility requires a great deal of patience. The classes may be 50 mins long 5 days a week on paper but that is rarely the case. Here is an example of a typical week: due to lack of staffing, students may not have school on Monday; on Tuesday the dentist is at the facility and several students will miss class; Wednesday all is well and students attend class for the duration; Thursday there is an argument in class, which if it escalates brings in more adults and the lesson is halted completely; Friday is a good class except for the two students who are not in school due to the previous day's activities. This does not include new arrivals in the middle of the marking period or those who leave just prior to being able to receive a grade for the class. Due to this erratic schedule, it is very difficult to put a timeframe to the lessons and being extremely flexible is key.

Teacher Resources

The lessons in this curriculum are divided into five sections:

1. Learning about Budgets
2. Finishing up your first Budget
3. Wages and Salary

4. Wages and Salary
5. Borrowing and Investing

Each lesson provides:

1. Lesson Overview
2. Objectives
3. Tasks
4. Activities
5. Vocabulary Words
6. Rubrics or Quiz depending upon the lesson

As with much of the consumer math curriculum, the order of these lessons can vary. Depending upon the students and technology available some lessons will take more time than others but expect these lessons to take 3-4 weeks inside a secure facility. This time would be reduced if teaching in a public school.

Outside Resources

Cost of living varies by geographical region and this can directly affect a personal budget. There are several websites that allow for comparisons between cities. Many of these are limited in scope or cost money. On the sites that allows for comparison and only requires a google account is https://www.numbeo.com/cost-of-living/ . Numbeo has a large database of both US and worldwide locations. It is easy to navigate and has enough information for students or teachers to make a fairly accurate budget.

There are several sites that list apartments and rooms for rent. These sites are fairly well detailed and contain information for cities across the US. A few of the most popular are:

1. Trulia https://www.trulia.com/
2. Zillow https://www.zillow.com/
3. Apartments.com https://www.apartments.com/
4. Craigslist https://www.craigslist.org/about/sites

These sites have enough information to assist students with finding a place to rent. How this information is provided to the students is up to the teacher within each facility. While Craigslist may not seem as reputable as other larger sites, landlords for smaller properties often post their listings there to avoid the more expensive sites.

One of the keys to finding a suitable place to live is location and access to amenities necessary for daily life. These may include bus/train stops, grocery stores, commercial laundromats, parks, and shopping centers. When researching an apartment, it is advisable to utilize other websites to get a better understanding of the area. Two of these websites are:

1. Google Maps https://www.google.com/maps This site, especially when used with street view gives the user a plethora of information about an area. The location of amenities coupled with time to travel from place to place makes this website essential for any prospective renter/buyer.
2. Google Earth https://www.google.com/earth This companion site for maps allows for a different perspective on an area. This site has more depth than Google maps and the 3D view makes it interesting and fun to zoom around a neighborhood.

With the exponential growth of information on the internet, it seems that everything that people used to do in person has become an on-line experience. One of these new experiences is looking for a job. There are many ways of looking for a job on-line from job search websites to individual company websites to sites like Craigslist. A few of the more popular sites are:

1. Monster https://hiring.monster.com/
2. Indeed https://resumes.indeed.com/
3. Glassdoor https://www.glassdoor.com/index.htm
4. Snagajob https://www.snagajob.com/
5. Craigslist https://www.craigslist.org/about/sites

There are many sites available for finding a job. The local newspaper also has listings and is usually a free search on-line. One of the biggest components to searching for a job on-line is time. One of the many positive results of the search is that it becomes easier to ascertain the expected income from certain jobs depending upon geographical location.

General Information

The following standards, timeframe and assessments are valid for all lessons in this curriculum. The timeframes will vary based on lesson size and involvement. This information is listed here once and can be referred to for subsequent lessons.

Grade Level: 9-12

State Standards: There are no mathematics state standards for Consumer Math however basic mathematics skills including multiplication, division, fractions, and percentages are also part of this lesson. New York framework for Social Studies has several standards for personal finance in 12th grade economics. These include 12.3b and 12.E3c.

Expected Timeframe: 1 – 2 days should be allotted for this lesson depending upon class make-up. This should be considered flexible when teaching in a secure facility

Assessment: This is a project that uses both summative and formative techniques. Vocabulary words are given throughout the lesson and a quiz will be given to determine knowledge of the words. A Wrap Up page will be used to assess knowledge of materials learned. This will not be given a grade but will be used as additional formative assessment. A preliminary budget will be given to assess student's knowledge of budgets. Formative assessment techniques such as mentoring and feedback, will allow for adaptation of lesson dependent upon response and interaction with students. Formative assessment is on-going and will be used to assess student knowledge and engagement. Adjustments to the lesson plan and timing will also be assessed to provide a coherent and efficient lesson.

Lesson 1: Learning about Budgets

Overview:
Living on your own can be scary. One of the first things you need to do is figure out if you can financially survive on your own. One of the keys to success is to create a realistic budget that incorporates all your expenses and income. To that goal, lets create a Budget.

Learning Outcomes:
In this lesson you will create a spending plan, commonly called a budget. During this exercise you will learn:

- The definitions of various terms associated with budgets.
- How to fill out a personal budget
- How to start thinking critically about how where and how you live can affect your life
- How to make a budget that fits your current situation.

Budgets are part of every-day life for almost everyone. Learning how to manage your money is the first step to financial success.

Learning Tasks	
__ 1.	Determine spending habits. How do you eat? Do you have a car? What can't you live without? These habits will determine how and why you spend money
__ 2.	Create a budget based on your expected/hoped for income. Does your current job or circumstance allow you to live like you want to?
__ 3.	You will learn how to estimate your expenses and income with no available research. How do you make a semi-accurate guess when you may not have any idea the cost of something?
__ 4.	This is a pre-budget, one created before any research. You will use this budget as a comparison to the budget you create after learning about income and costs.

Vocabulary	
Budget	An estimate of income and expenses for a set period.
Expenses	The cost required for something or the money sent on something.
Income	Money received, especially on a regular basis
Rent	A regular payment to a landlord for rental of a living area
Utilities	Bills that may include water, gas, electricity, phone etc.

Summary
Growing up and moving out on your own is a big step for many people. The financial struggle is real. Learning how to live within your means is essential for financial stability. By creating a budget, you can see both your expenses and your income on one page. This helps help decide where to spend or even save your money. This budget is one of the first steps in being able to understand where your money goes. The more effort and realistic approach in creating your budget, the more you will realize how important managing your money is. Remember it is your money!!!

Name:__________________________________ Date:___________________

Activity 1: Let's spend some Money

This activity is all on your own. You answer the questions based on what YOU know, not your buddy and not your kindly, knowledgeable teacher. Remember it is a guess but try to be realistic. If you are living at home, you may not pay rent or utilities. Try to picture what it will be like financially, not socially… when you are on your own. Take your time, we will be learning about these expenses in the following days. You will be able to compare today's budget with a budget made after learning about the cost of living on your own.

Do not expect to know all the answers regarding living expenses. Most young people do not know how much the electricity bill is or how much it costs to eat for a month. You may not know all the questions and that is to be expected. In this exercise, just go for it, make your best guess!!!

1. What will be your living arrangement? Estimate what it costs for your rent a month.
    a. Living at home
        i. Estimated cost per month ____________________
    b. Living in a dorm
        i. Estimated cost per month ____________________
    c. Living with some roommates
        i. Estimated cost per month ____________________
    d. Living on your own
        i. Estimated cost per month ____________________

2. How much are you paying for utilities? IS your place all-inclusive with utilities or are you responsible for some?
    a. Gas _______________________
    b. Electricity __________________
    c. Water _____________________
    d. Phone _____________________
    e. Other? _____________________

3. What do you like to eat? Estimate your food costs per month.
    a. Dining out all the time. ______________________
    b. Fast food junkie ____________________________
    c. Love me some home cookin' __________________

4. Transportation and you. How do you plan to get around? How much will your transportation cost you?
    a. Walking or riding a bike __________________________
    b. Taking mass transit (busses, trains, and subways) _______________________
    c. Bumming rides from people ______________________
    d. Having your own sweet ride. Paying for gas, maintenance, and insurance.

        ____

    e. Gonna be the next Twitch star and never leave my mom's basement.

        ____

5. Entertainment, what you do to have fun or relax.
    a. Estimate your spending on games, movies, music, partying…
        ____

6. Clothes. This includes looking good and being dressed for the weather. Maybe even some new sneakers.
    a. How much do you think you will spend every month? You can estimate for a year and just do the math for a nice monthly sum. _______________________

7. Miscellaneous. If you think of something you might spend money on, write it down, put a monthly figure to it. Remember it is an estimate. You could even think about saving your money. Maybe saving for both short term and for the future.
    a. Item _______________________
        i. Cost ______________________________
    b. Item _______________________
        i. Cost ______________________________
    c. Item _______________________
        i. Cost ______________________________

Name:___________________________________ Date:___________________

Activity 2. My Income

Answer the following questions based on what you ***think*** you will be doing when you are on your own. Think about your sources of income and how they will affect your budget. Remember try to be realistic to yourself. This is about you, not about a pretend you.

1. What kinds of income do you regularly receive during the year?

2. What kind of job do you expect to have when you are first out on your own?

3. Are there certain times of the year in which you may need more money than normal?

4. What are some predictions you can make about your income in the beginning?

5. The big question…. How much money will you be making or bringing in each month?

Name:____________________________________ Date:____________________

Activity 3: Let's Make our First Budget!!!

Using the information from the last couple activities, you will fill in your first budget. Remember you don't have all the answers, in fact you may have none, but think about what you 'estimate' is a number that makes sense for both income and cost. This is your first one, so don't sweat it, For something extra, fill-in the budget if you have a roommate.

Income	**Estimated Monthly**	**With Roommate**
Regular Income, Job		
Other Income		
Total Income		
Expenses		
Rent/Mortgage		
Gas		
Electric		
Water		
Garbage		
Phone		
Internet		
Cable		
Food, Groceries, Dining Out		
Car Payment		
Car Insurance		
Fuel, Gas, Diesel		
Clothes		
Entertainment		
Other		
Savings		
Total Expenses		
Net Income (income minus Expenses)		

Lesson 2: Finishing up My first budget

Overview:
Now that we have just basically guessed at how much it costs to live on our own, it is time to do some research. There is a lot of information available on the internet to make our research efficient and fun. This lesson is the beginning of that research

Learning Outcomes:
In this lesson you will create a better researched budget. During this exercise you will learn:

- How to reconcile spending with earning.
- How to accurately predict costs associated with living on your own
- What the various terms surrounding budgeting are and how they are used contextually.
- How to make a budget that fits your current situation.

Making a budget is something that everyone needs to know how to do. The better the budget, the closer to financial success you will become.

Learning Tasks	
__ 1.	Research the cost of apartments in your area and learn about their true cost!
__ 2.	Create a budget based on your income. Does your current job or circumstance allow you to live like you want to?
__ 3.	You will learn how to use on-line sites to help you determine the cost of rent. Navigating the internet will save you time and money and make it easier to make a budget that works for you.
__ 4.	After creating your budget, you will create another budget for your future self. Where do you see yourself in ten years and how will that affect your budget?

Vocabulary	
Authentic	Something that is real or authentic, not fake or imagined
Lease	A contract that conveys property for certain specified time
Credit	The ability of a person to obtain goods or services based on the trust of it being paid back
Insurance	A practice by which a company provides a guarantee against loss or damage
Maintenance	The process of maintaining or preserving something

Summary

The more knowledge you gain about the cost of living the better informed you will be when it comes time to make the big leap onto your own. Learning how to accurately determine costs will help you make decisions on where to live, how to spend money on food and entertainment and if you are able to make everything work with just one job. Do you need to get a second job, or should you try to get more education or a certification to help you make more money? These questions are tough, but starting with a solid budget is the first step

Name:___________________________________ Date:___________________

Activity 1: Let's make a budget (a better budget)

On the following page is a budget with some general categories already filled in. Using the information you gained from the last two activities, fill out the budget to the best of your ability. When it is all done do you have money left over? Do you need to adjust some expenses to make everything work? Remember this is your first budget, we will learn about costs and expenses in detail in the future. Do your best to be authentic.

Name:____________________________________ Date:____________________

My Budget….

Fill in the Estimated Monthly column with your best guesses. We will ignore the other columns for now.

Income	**Estimated Monthly**	**Actual Monthly**	**Difference**
Regular Income, Job			
Other Income			
Total Income			
Expenses			
Rent/Mortgage			
Gas			
Electric			
Water			
Garbage			
Phone			
Internet			
Cable			
Food, Groceries, Dining Out			
Car Payment			
Car Insurance			
Fuel, Gas, Diesel			
Clothes			
Entertainment			
Other			
Savings			
Total Expenses			
Net Income (income minus Expenses)			

Name:___________________________________ Date:___________________

Activity 2: Let's find an apartment, a house, a townhome, anything to live in

House

Townhome

Apartment

You have created your first budget; you should be proud as this is the first step towards financial success. The problem is, you don't know if your numbers are authentic. You need to do some research to determine if what you think things cost and what they actually cost are similar. Let's start with rent as it is usually the biggest expense that everyone has. The first thing that you need to do is figure out your living arrangements.

Let's answer a few questions first. Check the box that applies to you. Fill in the blank as needed.

- Are you living alone?
- Do you plan to live at home with family?
- Are you going to be living in a dorm?
- Are you planning on having roommates? If so, how many? ______________
- Are you planning on having a car or using mass transit? ____________________
- How close do you need to be to your school or job? ____________________
- What are your hobbies? ____________________________

- How far from home do you need to go to get to your hobbies?

  ____

- Do you have special requirements; a pet, need special access, need a garage, etc.?

  ____

These are few questions you will need to answer when apartment shopping. If you are living home, you may not need to look at all and have no rent. If you are living on alone, you will need to pay all the rent and utilities. If your apartment is long way from school or work, how are you traveling back and forth. These are but a few questions that you need to answer before looking for a place to live.

With the above questions in your mind, it is time to start your search. Below are some options for finding a place to live. The internet is a great place to hunt for an apartment or house. There are many sites to help you find the right place for you but let's focus on a few of the more popular ones.

1. www.trulia.com
2. www.zillow.com
3. www.apartments.com
4. www.craigslist.org

Using these sites, spend some time looking for a place to live that FITS your budget. Making minimum wage for 30 hours a week kinda means that a $1500/month apartment is too expensive. Be realistic, but patient. Remember your situation can always change, what may be too expensive today is perfect next year.

BIG RULE: YOUR RENT SHOULD BE NO MORE THAN 30% OF YOUR INCOME

Anything more than this makes life tough. Don't let your Champagne dreams overwhelm your Lemonade reality. Life is expensive enough to try to live in something you can't afford.

When looking at these sites, you should be looking at a variety of parameters with the rentals:

1. **Monthly rent**, can you afford it? Is it close to **30%** of your income?
2. **Security deposit cost**. What is the cost to move-in?
3. **Utilities**. What is included? If there are some utilities not included, you will need to do some research on expected costs. You can generally get a report from a utility company on approximate monthly costs.
4. **Pet rules**. If you can't live without Fluffy, you need to make sure you are allowed pets. Remember some rentals charge more **Per Month** for pets.
5. **Parking/garages**. Do you have a place to park your car? Some places limit the number of parking spots per unit. Some places charge extra for parking spots.
6. **Application fees.** Most rental companies charge a **Non-Refundable** fee to apply. Limited the number of applications you send out will save you money. Only try to apply for an apartment/house if you are serious.
7. **READ THE FINE PRINT**. Take your time and read through the listing before you make your decision. The apartment complex might have a beautiful pool, spa, and fitness center but they might be under renovation or have limited hours. The adage says Buyer Beware, but in this case **Renter Beware**.

These are a few things to look for when apartment shopping. As you are looking through the site, you need to write down the places that appeal to you. Most sites let you Favorite specific units for later views. Make use of these tools to inform you.

Fill in the following form with your information. Try to find out all the information you can…

Name:________________________________ Date:_________________

Apartment Comparison

Name of complex (if given): ____

Website: ____________________Address: ____________________________

Monthly Rent: ______________Security deposit: __________________

Parking availability/cost: _________________________________

Utility costs or inclusion: ____

Pet Policy: ____

Other important information: ____

Name of complex (if given): ____

Website: ____________________Address: ____________________________

Monthly Rent: ______________Security deposit: __________________

Parking availability/cost: _________________________________

Utility costs or inclusion: ____

Pet Policy: ____

Other important information: ____

Name of complex (if given): ____

Website: ____________________Address: ____________________________

Monthly Rent: ______________Security deposit: ___________________

Parking availability/cost: _________________________________

Utility costs or inclusion: ____

Pet Policy: ____

Other important information: ____

Name:________________________________ Date:__________________

Let's finish up these expenses

Now that you have looked at housing costs of rent and utilities, let's look at some other costs associated with living on your own. These include food, transportation, savings, clothing, and entertainment. These are highly individualized. One person's eating habits may be much more expensive that another's. Having a car can be more expensive than riding a bike or walking. Look at these categories and think about YOUR situation before you write down a number. A few examples are provided to help you.

Food:

A good number to look at for food is $100 a week. This would include the occasional pizza or trip to Burger King, but also a lot of home cooked meals. If you eat out for lunch each day that can quickly add up. If you are sharing space with family or roommates, this number can be smaller as it is cheaper to cook for several than for one.

Estimate your food costs for 1 month, it may be easier to think of it as per week and then multiple by 4 to get a better idea of costs. __________________________

Transportation:

Transportation is another cost to factor in. If you have a car, do you make payments and owe insurance, how about gas and maintenance costs. If you rely on a bus or train or subway, how much is a monthly pass. Again, this is individual. No car means a lot less costs and concerns. How much is going to cost you to move around? ____________________________

Savings:

Savings can be hard to make as a priority when things are tight. Even $5 a day can add up over the year. What are you going to save? _____________________________________

Clothing:

Clothing is an essential but how you shop is very individual. Some folks can wear the same bunch of clothes for a long time, while others need to have the new Jordan's. This is up to you and your budget. Maybe you budget some for each month, planning on saving a couple months to make a big purchase. How much are you willing to spend to look good?

____

Entertainment:

Entertainment can be another expense that can vary greatly. New video games are costly, playing basketball costs almost nothing. If you like to party expect to put more money into this category. How much do you want to spend to have a good time? _____________________

Name:___________________________________ Date:___________________

Income and finishing up your budget

Now that you have figured out how to spend money, let's look at income and how to figure out if you can afford that Gucci bag. You need to be realistic here, even more so than expenses. If you over-inflate your income, you will soon have no money left over and could fall into debt quickly. You need to take your own circumstances and capabilities into consideration when figuring out your monthly income. We will be doing a deep dive into wages and salary in the lessons ahead, but for now let's get started with the basics.

Vocabulary	
Debt	Something that is owed or due.
Wage	A fixed regular payment typically paid on a daily or weekly basis from an employer to an employee.
Salary	A fixed regular payment, paid on a bi-weekly or monthly schedule from employer to employee
Gross income	Total income before taxes or deductions
Net Income	Total income after taxes and deductions (take home pay).

Name:___________________________________ Date:___________________

A few thoughts.

Minimum wage in New York state varies from $15/hr. in New York City to $12.50 outside the boroughs. Many places pay more than minimum wage, but you can't count on it. Also, some employers will not allow workers to go full time as they can be federally mandated to pay health care. This can limit the hours available to work, reducing income or forcing one to work multiple jobs. Think about your abilities and how much time you can devote to working. If you are going to school, you may not be able to work many hours. Remember, this is another highly individualized part of a budget. Be fair to yourself when you are planning your income.

Hourly Pay

Type of job: ____

Expected hourly pay: ____________________________________

Expected number of hours a week: _______________________________

Time for the math:

Hourly pay x hours per week (weekly pay) equals: ______________________________

Taxes show up here. We are going to assume 20% taxes. Multiply your weekly pay by 0.8. This will give you your net pay: _________________________________

Multiply your net pay by 4.3 (there are more than 4 weeks in a month, this gives a better representation of monthly pay. ______________________________

This is your monthly income.

Salary

Type of job: ____

Expected salary: ____

Divide your annual salary by 12 to get your monthly income: ______________________

Taxes show up here. We are going to assume 20% taxes. Multiply your monthly pay by 0.8. This will give you your net pay: _________________________________

This is your monthly income.

Name:____ Date:_____________________

My Budget….

Fill in the Estimated Monthly column from the earlier budget. Fill in the actual with your researched information. Determine the difference in the final column

Income	**Estimated Monthly**	**Actual Monthly**	**Difference**
Regular Income, Job			
Other Income			
Total Income			
Expenses			
Rent/Mortgage			
Gas			
Electric			
Water			
Garbage			
Phone			
Internet			
Cable			
Food, Groceries, Dining Out			
Car Payment			
Car Insurance			
Fuel, Gas, Diesel			
Clothes			
Entertainment			
Other			
Savings			
Total Expenses			
Net Income (income minus Expenses)			

Name:_______________________________ Date:_________________

My Budget….in the Future…

Fill in the First monthly with your current budget. Second, fill in what you "think" your budget will be in 10 years. Think about your job and housing 10 years from now. What else may change? Determine the difference in the final column

Income	**First Monthly**	**10 Years Monthly**	**Difference**
Regular Income, Job			
Other Income			
Total Income			
Expenses			
Rent/Mortgage			
Gas			
Electric			
Water			
Garbage			
Phone			
Internet			
Cable			
Food, Groceries, Dining Out			
Car Payment			
Car Insurance			
Fuel, Gas, Diesel			
Clothes			
Entertainment			
Other			
Savings			
Total Expenses			
Net Income (income minus Expenses)			

Name:___________________________________ Date:___________________

Wrap-up

You have just completed your first budget. Many items are simply a guess. As time goes on, these guesses will become more and more accurate. Answer the following questions about budgeting and what you may have learned these past few days (weeks). Be truthful. Learning how to make a successful budget will help you succeed financially.

1. How did your numbers change from the first budget to the last? Are you surprised at what you found out?

2. How much money do you have at the end of the month? Did you need to make changes to your budget? What did you give up?

3. If you had extra money each month, what would you spend it on? Would you save it for an emergency or spend it on something fun?

4. Do you think budgets are important? Do you think you will make one in the future?

5. What changes would you make to this lesson? List some ideas to make it better.

Name:______________________________ Date:________________

Lesson 2: Budgets Vocabulary Quiz.

Give the definition for the following words:

1. Budget ____
2. Expenses ____
3. Income ____
4. Rent ____
5. Utilities ____
6. Authentic ____
7. Lease ____
8. Credit ____
9. Insurance ____
10. Maintenance ____
11. Debt ____
12. Wage ____
13. Salary ____
14. Gross Income ____
15. Net Income____

Budget Assessment Rubric

Total points available 20

	Poor (1 pt.)	Fair (3 pts.)	Good (5 pts.)
Budget/Spending Plan Components	Budget is not realistic and missing key components. Budget is not completed with income and expenses.	Budget is complete but the final outcome shows a negative balance.	Budget is complete and realistic. It is a good working budget, authentically created.
Ability to adjust budget	Made little or no adjustments to budget, particularly from first to last budget.	Made some adjustments to budget when exposed to authentic scenarios.	Made all the necessary adjustments to the budget when exposed to authentic and different scenarios.
Budget summary	Unable to explain numbers in the budget or summarize the spending plan.	Summarized most of the budget but unable to explain how the different numbers were arrived at. Able to show basic knowledge and understanding but unable to explain how it was derived	Able to summarize the budget and explain the details in the budget. Everything is well thought out
Rental Research	Did little to no research. Did not discover costs associated with actual expected expenses.	Did basic research but did not fully research the options available. Filled out some of the information on the rental research form but only at a minimum level.	Fully researched apartment options along with associated costs and concerns. Fully developed research sheet on potential living options.

Sample income and expenses for various cities in NY. See notes after budget.

Income	**Buffalo**	**Rochester**	**Hempstead**	**NYC/Bronx**	**Utica**
Regular Income, Job after taxes	2132	2132	2132	2132	2132
Other Income					
Total Income	**2132**	**2132**	**2132**	**2132**	**2132**
Expenses					
Rent/Mortgage	1100	900	2200	1620	740
Utilities	100	100	120	120	100
Electric, if separate					
Water, if separate					
Garbage, if separate					
Cell Phone	45	45	45	45	45
Internet	65	65	65	65	65
Cable	35	35	45	45	35
Food, Groceries, Dining Out	250	250	275	300	250
Mass Transportation	75	55		125	
Car Payment			200		200
Car Insurance			185		185
Fuel, Gas, Diesel			80		80
Clothes	100	100	110	120	100
Entertainment	50	50	70	70	50
Other					
Savings	50	50	50	50	50
Total Expenses	**1870**	**1650**	**3445**	**2560**	**1900**
Net Income (income minus Expenses)	**262**	**482**	**-1313** **Yikes!**	**-428** **Ouch…**	**232**

1. Income is based on $15 per hour, 40 hours a week, 52 weeks a year.
    a. 18% income tax is used (12% federal, 6% state)
2. Rent is based on 950 sq ft apartment. The numbers listed are for apartments on the low end of choices. These rents are averages of several web sites (Trulia, Zillow, Apartments.com)
3. Utilities are based on apartments with most utilities included in rent. As this can vary, additional sections are available.
4. Food, groceries is based on one person generally cooking at home. Dining out will raise this number considerably.
5. Mass transit cost are based on 1 month passes.
6. As Hempstead and Utica do not have strong mass transit systems locally, a vehicle is listed. Insurance cost is based on financed car, comprehensive insurance, male youth under 25.
7. Clothes, entertainment, and savings are all flexible and will vary month-to-month.

Lesson 3. Wages and Salary

When you get paid for your efforts, do you know how your wages are calculated? If you worked 24 hours of overtime, how much should you expect on your check? You signed a job agreement making $45,000 a year, how much is your check going to be? How often do you get paid? These are the questions you need to answer when you get a job. In this lesson we are going to look at some of the more popular ways that people get paid. There are plenty of ways to get money, but the ones we are going to talk about are the most common.

Overview:
Getting started in the workforce can be as easy as handing in a job application and going to work the next day. It can also be frustrating when you get no responses to your applications. In this lesson we will look at the money section of working. We will analyze different ways that people are paid.

Learning Outcomes:
In this lesson you will learn some of the different ways people are paid. You will also learn:

- How to determine pay based on piecemeal work
- What commission is and how it can be applied to pay.
- How to figure out your pay based on salary and frequency of pay

Budgets are part of every-day life for almost everyone. Learning how to manage your money is the first step to financial success. Just like budgets, the more you know about your finances, the better chance you will make enough money to live a comfortable life or buy the new Nikes every time they drop.

Learning Tasks	
__ 1.	How to calculate gross pay based on hours worked, both straight time and overtime.
__ 2.	How to determine pay if doing piecework or piecemeal
__ 3.	How to determine your expected amount of pay given your salary and frequency of pay.
__ 4.	Learn about getting paid by commission and figure out how much your pay should be.

Summary:

There are lots of jobs and lots of ways to get paid. It is important that you understand how you are getting paid for your time and services. Knowing how to calculate commission or overtime is your responsibility—it is your money! You need to know how you are getting paid and you should have a good idea of what your pay should be. Do not rely on others to tell you. Understanding your wages and pay is essential if you are to be financially successful.

Brief Overview and a few terms to learn…

One of the most popular reasons for getting a job is to get paid for your services. There are a variety of ways to get paid. They include:

- **Piecemeal.** This is where you get paid for each thing you make or service you provide. A craftsman making furniture or a jeweler making earrings may sell their individual works to others, getting paid piecemeal. This can also be used to describe getting paid daily for specific tasks. A person who is hired to help clear up a construction site for 1 day would be paid for their services. This type of work can also be called day-labor.
- **Hourly wages.** This is the most common type of pay in the US, accounting for almost 58% of the US workforce. The title says it all; a person is paid for each hour they work. Generally, these are jobs that have a scheduled work week, which shows the expected hours. A fixed rate of pay is agreed to in the beginning of the job and the worker is paid that set amount for each hour worked. This type of pay is common in the trades, retail, and service industry.
    - One thing of note is that many workers are compensated for working over 40 hours in 1 week. This is commonly called overtime or time and a half. The rate of pay for hours over 40 equates to the number of hours over 40 multiplied by the standard or regular pay multiplied by 1.5.
    - OT (overtime) = Normal pay rate * number of hours over 40 * 1.5
    - When figuring out weekly pay it is necessary to add the wages earned during straight time to the wages made during overtime.
- **Salary.** Some jobs pay a fixed rate for a year. This number does not change, unless a raise or demotion occurs. This rate of pay is determined before work begins. This amount is paid out over regularly schedules dates. If a person is paid every 2 weeks, then the pay would equate to the salary divided by 26 (number of pay periods in one year if paid every 2 weeks (bi-weekly)
    - If the scheduled pay schedule differs from biweekly, such as weekly, then the salary would be divided by 52 (number of weeks in a year. If the scheduled pay schedule is monthly, then the salary would be divided by 12 (monthly).
- **Commission.** Commission is the pay received based on a percentage of services rendered. A car salesman may receive a commission on every car sold. Commission is generally perceived as a reward or motivation for work done. Some jobs may pay a salary and a commission while others may pay only commission.
    - A person who is paid 10% on all sales, sells $50,000 worth of goods in a moth. If this person is paid on a commission basis, she will receive $5,000 in pay ($50,000 * 0.1).
- **Tips.** In the US, it is common practice to tip, or add additional money to the final bill for the person providing the services. Food servers, waiters and waitresses, hair stylists and tattoo artists are commonly tipped for providing quality service. This extra money is usually determined by a percentage of the total bill. This money is added to the worker's daily pay.
    - A worker who is paid $5 an hour works 8 hours in one day and receives $100 in tips would receive $140 ($5 * 8 + $100)

These are just a few of the ways that a person can receive money for goods or services, however, since they are the most common ways of getting paid, in this lesson these will be the ones we focus on.

Name:________________________________ Date:__________________

Activity 1: Piecemeal pay

Piece by piece. That is what piecemeal is. It can also be called piecework. You get paid for each piece you create or service you perform. This can include jewelry makers, cabinet makers, writers, and cleaners. The pay is often dependent on the job performed or item created. Remember you get paid for each item you create or job you do. The more you are able to make, the more money you can make. Of course, you cannot rush as your quality may suffer.

Below is a list of jobs that may be paid piecemeal. Many independent contractors are paid by the piece or job performed. A writer may only get paid for each article that is accepted or a blacksmith may only get paid for each horseshoe she makes.

1.	Job:	**Jeweler**
	Item made/job done:	50 Earrings
	Pay per item/job:	$10
	Total pay: Item made * pay per item	**$500**

2.	Job:	**Cleaner**
	Item made/job done:	20 Houses cleaned
	Pay per item/job:	$125
	Total pay:	____________

3.	Job:	**Cabinet Maker**
	Item made/job done:	16 Cabinets
	Pay per item/job:	$400

	Total pay:	____________
4.	Job:	**Lumberjack**
	Item made/job done:	1200 trees fell
	Pay per item/job:	$100
	Total pay:	____________
5.	Job:	**Apple Picker**
	Item made/job done:	15,000# of Apples
	Pay per item/job:	$18 per 1,000
	Total pay:	____________
6.	Job:	**Writer**
	Item made/job done:	12 Articles
	Pay per item/job:	$175 per article
	Total pay:	____________
7.	Job:	**Sheetrock Installer**
	Item made/job done:	400 sections sheetrock
	Pay per item/job:	$8 per section
	Total pay:	____________
8.	Job:	**Fisherman**
	Item made/job done:	20 Fish
	Pay per item/job:	$6 per fish
	Total pay:	____________
9.	Job:	**Pearl Diver**
	Item made/job done:	17 pearl oysters
	Pay per item/job:	$45 per pearl
	Total pay:	____________

Name:___________________________________ Date:___________________

Activity 2: Getting paid by the hour

The idea here is simple. Take the number of hours worked and multiply them by the rate of pay. We will focus first on straight time pay – no overtime. The first one is done for you.

1.	Job:	**Truck Driver**
	Hours Worked:	35
	Hourly Pay:	$17
	Total Pay:	**35 * $17 = $595**

2.	Job:	**Carpenter**
	Hours Worked:	25
	Hourly Pay:	$15
	Total Pay:	_____________
3.	Job:	**Tutor**
	Hours Worked:	20
	Hourly Pay:	$40
	Total Pay:	_____________
4.	Job:	**Waitress**
	Hours Worked:	$5.75
	Hourly Pay:	35
	Total Pay:	_____________
5.	Job:	**Auto Mechanic**
	Hours Worked:	40
	Hourly Pay:	$35
	Total Pay:	_____________

Name:_________________________________ Date:__________________

Activity 2: Getting paid by the hour (part 2)

Now that you have a grasp on how to calculate wages based on straight time hours (under 40), it is time to add overtime or time and a half to the mix. Thinking of it as getting extra pay for working a lot of hours. With OT (overtime) we will calculate the ST (straight time) pay first for all hours up to 40. We will then multiply the number of hours over 40 by the hourly pay and then multiply that number by 1.5. It sounds confusing but once you get going it will make sense. Remember overtime is the same as time and a half! Some jobs pay OT after 8 hours in day or on weekends. We will not focus on these though.

Here's the formula:
ST hours up to 40 * hourly wage + OT hours (anything over 40) * hourly wage * 1.5 = Total Pay
We are going to do a few more of these as it can be a bit tricky. The first one is done for you.

1.	Job:	**Plumber**
	Hours Worked:	65
	Hourly Pay:	$28
	ST Hours worked	40
	ST Pay: Hourly pay * Hours worked up to 40	$28 * 40 = $1,120
	OT Hours Worked: Hours worked - 40	65 – 40 = 25
	OT Pay: OT Hours worked * Hourly pay * 1.5	25 * $28 * 1.5 = $1,050
	Total Pay: ST Pay + OT Pay	**$1,120 + $1,050 = $2,170**

2.

2.	Job:	**Barber**
	Hours Worked:	57
	Hourly Pay:	$16
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________
3.	Job:	**Office Assistant**
	Hours Worked:	48
	Hourly Pay:	$13
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________
4.	Job:	**Dishwasher**
	Hours Worked:	60
	Hourly Pay:	$11.50
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________
5.	Job:	**Laborer**
	Hours Worked:	86
	Hourly Pay:	$18.75
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________

6.	Job:	**Hostess**
	Hours Worked:	42
	Hourly Pay:	$9.50
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________
7.	Job:	**Nurse**
	Hours Worked:	78
	Hourly Pay:	$42
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________
8.	Job:	**Security Guard**
	Hours Worked:	64
	Hourly Pay:	$23.75
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________
9.	Job:	**Pizza Chef**
	Hours Worked:	49
	Hourly Pay:	$13
	ST Hours worked	__________
	ST Pay:	__________
	OT Hours Worked:	__________
	OT Pay:	__________
	Total Pay:	__________

Activity 3: Getting paid a Salary…

Many jobs do not pay by the hour. Some of these jobs have wages negotiated **yearly**. We call this type of pay salary. Unlike hourly pay, there is no compensation for working overtime. Many jobs are paid through salaries. These can include engineers, layers, teachers, drug counselors and doctors. Some folks like a regularly scheduled job working the same hours each week, receiving the same amount of pay on payday. It makes budgeting much easier. However, there may be many weeks that these workers work more than 40 hours in a week. They do not get extra pay if they work extra hours…there salary is fixed for the year!

Name:______________________________ Date:________________

Let's look at a few salary positions and their rate of pay. In this activity we are going to determine how much a person will receive on payday, whether they get paid weekly, bi-weekly (every two weeks), bi-monthly (twice a month) or monthly. As you will see, it is much easier to determine pay if you are salary was it is the same every time you get paid!!!

1.	Job:	**Math Teacher**
	Salary:	$44,000
	How paid: (weekly, bi-weekly, bi-monthly, monthly)	Bi-weekly
	Number of pay periods per year: weekly = 52, bi-weekly = 26, bi-monthly = 24, monthly = 12	26
	Pay per pay period: Salary / number of pay periods	$1,692.31

2.	Job:	**Social Worker**
	Salary:	$36,000
	How paid:	Bi-monthly
	Number of pay periods per year:	_________
	Pay per pay period:	_________
3.	Job:	**Software Engineer**
	Salary:	$85,500
	How paid:	Bi-weekly
	Number of pay periods per year:	_________
	Pay per pay period:	______________________

4.	Job:	**Orthodontist**
	Salary:	$230,000
	How paid:	Monthly
	Number of pay periods per year:	__________
	Pay per pay period:	__________
5.	Job:	**Master Sergeant**
	Salary:	$62,375
	How paid:	Bi-monthly
	Number of pay periods per year:	__________
	Pay per pay period:	__________
6.	Job:	**Prison Warden**
	Salary:	$119,159
	How paid:	Bi-weekly
	Number of pay periods per year:	__________
	Pay per pay period:	__________
7.	Job:	**Banker**
	Salary:	$49,000
	How paid:	Bi-weekly
	Number of pay periods per year:	__________
	Pay per pay period:	__________
8.	Job:	**Family Court Judge**
	Salary:	$136,700
	How paid:	Bi-weekly
	Number of pay periods per year:	__________
	Pay per pay period:	__________

Name:________________________________ Date:__________________

Activity 4: Making the sale and getting paid a commission

Some workers are paid by commission. They receive money based on the number of sales or the amount they sell. Car salesmen, insurance agents and real estate agents are some of the more common jobs that pay by commission. Some of these jobs pay a base salary plus commission while others pay only commission. A commission is a sum of money paid to a worker after a job is complete. It is usually a percentage of the sale but can also be a flat fee for completion of a sale or project.

Since there are multiple ways to get paid a commission: we will break it down in several parts. The first one is commission only. Here is an example:

Travon, a real estate agent, gets paid 3% of the total sale price for each house he sells or helps someone buy. If Travon helps sell a house that sells for $200,000, he would receive $6,000 or 3% of $200,000. If he assists a buyer in buying a home that costs $130,000, he would receive $3,900 or 3% of $130,000. Let's try a few 😊

1.	Price of house:	$325,000
	Percent of commission:	3%
	Total pay: Price of house * percent (make sure it is in decimal form!)	**$9,750**

2.	Price of house:	$1.7 million
	Percent of commission:	3%
	Total pay:	__________
3.	Price of house:	$75,000
	Percent of commission:	6%
	Total pay:	__________
4.	Price of house:	$215,000
	Percent of commission:	3%
	Total pay:	__________

Name:________________________________ Date:__________________

Commission is also paid on auto sales. In this case, saleswomen are paid a base salary plus a commission on top of each car sold. This commission can be either a flat fee for each car sold or a percentage of the profit of the sale. Note this is not on the sale price of the car, only the profit after the sale! Also, the commissions are usually calculated on a monthly basis.
Let's look at an example:

Cassandra gets paid a base salary of $24,000 a year. Each car she sells she gets $100 extra as commission. If she sells 12 cars in a month, she would make $2,000 (monthly pay on $24,000 a year) plus $1200 for the sale of the cars. This means she would make $3,200 for the month.
Now it is your turn. The first one is done for you:

5.	Yearly salary:	$30,000
	Monthly pay: yearly salary / 12	$2,500
	Flat fee per vehicle sold:	$75
	Number of cars sold:	9
	Commission on sales:	$675
	Total pay for the month: Monthly pay + Commission on sales	$3,175

6.	Yearly salary:	$20,000
	Monthly pay:	__________
	Flat fee per vehicle sold:	$125
	Number of cars sold:	15
	Commission on sales:	__________
	Total pay for the month:	__________

7.	Yearly salary:	$26,000
	Monthly pay:	__________
	Flat fee per vehicle sold:	$175
	Number of cars sold:	11
	Commission on sales:	__________
	Total pay for the month:	__________
8.	Yearly salary:	$28,500
	Monthly pay:	
	Flat fee per vehicle sold:	$95
	Number of cars sold:	18
	Commission on sales:	__________
	Total pay for the month:	__________
9.	Yearly salary:	$24,000
	Monthly pay:	
	Flat fee per vehicle sold:	$100
	Number of cars sold:	6
	Commission on sales:	__________
	Total pay for the month:	__________
10.	Yearly salary:	$32,000
	Monthly pay:	
	Flat fee per vehicle sold:	$150
	Number of cars sold:	2
	Commission on sales:	__________
	Total pay for the month:	__________

Name:___________________________________ Date:___________________

Activity 4: More commission options

Another way that auto salesmen can be paid is salary plus commission of profit on sales. This can change the commission per vehicle by quite a bit. A car that is very profitable for dealerships means more money for the salesman. Conversely, a car that has a low profit margin for a dealership nets small commissions for the salesman.
Let's look at an example:

Jamir sells a car for $36,000. The total profit for the dealership on this sale is $4,000. Jamir is paid 15% of the profit as a commission. Jamir makes $600 on this one sale!!! Hopefully he will be able to make this much money on all the cars he sells…
Now a few for you to do. The first one is done for you.

1.	Sale price of the car:	$40,000
	Profit on sale: sale price minus dealer costs on car:	$3,000
	Percent of commission paid on profit:	25%
	Total pay for 1 car:	$750
2.	Sale price of the car:	$15,000
	Profit on sale:	$1,500
	Percent of commission paid on profit:	20%
	Total pay for 1 car:	__________
3.	Sale price of the car:	$69,000
	Profit on sale:	$8,000
	Percent of commission paid on profit:	15%
	Total pay for 1 car:	__________

Name:____________________________________ Date:____________________

Here is a chance for you to show your knowledge of commission and salary!

Solve the following:

Jerry makes $30,000 a year at the dealership. He makes 20% commission **on the profits** of each car sold. For the month of July, this was the record of his sales:

Date:	Car sale Price:	Profit:
July 1	$24,500	$2,800
July 2	$65,100	$7,450
July 6	$8,900	$500
July 6	$29,000	$1,250
July12	$14,000	$800
July 17	$22,500	$2,000
July 18	$35,000	$3,150
July 26	$42,300	$2,600
July 25	$56,000	$4,800
July 25	$14,250	$1,500

1. How much money did Jerry make in July?

2. Which day was his best day?

3. If Jerry normally works 40 hours a week, how much did he average per hour for the month of July? Figure there are 4.3 weeks per month!!!

4. Is working at an auto dealership worth it financially? Would like to do this job?

Name:____________________________ Date:_______________

Activity 5: Tipping is not a city in China…

The United States has an unwritten rule when it comes to offering gratuities, or tips, to the end of a bill. This generally occurs in the food service industry, hair salons and barbers, and valets or delivery drivers, to name a few. Tips are given as an extra payment to the person providing the service. It is not designed for the business or company; it is specific to the individual providing the service. This includes taxi drivers, nail stylists and tattoo artists. Most of these jobs have a low base pay and rely on tips to make money. Remember not everyone gives a tip. You **cannot rely** on making a set amount of money when part of your income if from tips…

Tips can be paid either as a flat payment or a percentage of the bill. People generally tip between 15% and 25% tips. You can leave a cash tip or add it to your credit card slip. The following problems give different examples of how tipping works:

Neil is a tattoo artist and he usually charges $100 an hour for his services. If a customer gets a tattoo that takes 2.5 hours and gives a $20 tip, Neil would receive $270 for his work: $100 * 2.5 +$20.

Annie works as a waitress and relies on tips to make a living. One group comes into the restaurant and their final bill is $150. They leave a 18% tip for Annie. How much money did Annie make off that table of guests? She received $27; $150 * 0.18 is $27.

Using your newfound knowledge of tips and gratuities, it is time to solve a few on your own. The first one is done for you.

1.	Amount of meal:	$37.50
	% of tip left or flat amount:	15%
	Amount left as tip: amount of meal * % of tip (as decimal)	$5.63

2.	Amount of meal:	$145.00
	% of tip left or flat amount:	20%
	Amount left as tip:	__________
3.	Valet Parking:	$12.25
	% of tip left or flat amount:	$3.50
	Amount left as tip:	__________
4.	Uber Ride	$65.45
	% of tip left or flat amount:	18%
	Amount left as tip:	__________
5.	Pizza Delivery:	$8.25
	% of tip left or flat amount:	$1
	Amount left as tip:	__________
6.	Taxi Fare:	$86.25
	% of tip left or flat amount:	10%
	Amount left as tip:	__________
7.	Nail Stylist	$50.00
	% of tip left or flat amount:	0%
	Amount left as tip:	__________
8.	Haircut and Shave	$390.25
	% of tip left or flat amount:	18%
	Amount left as tip:	__________
9.	Amount of meal:	$61.50
	% of tip left or flat amount:	22%
	Amount left as tip:	__________
10.	Cost of tattoo:	$21.90
	% of tip left or flat amount:	30%
	Amount left as tip:	__________

Name:___________________________________ Date:___________________

Wrap up

We have learned of a few ways to make money. We did not talk about pensions, trust funds, royalties, dividends, gambling, etc. But the ones we covered are the main way that people make money. You may find that you will work in jobs that cover all the scenarios from this lesson. Take a moment and think about the kind of job you would like to get. Now figure out how you are going to get paid.
After thinking about your job answer the following questions:

1. What kind of job do you see yourself doing as you get older?

2. How would you get paid for your efforts?

3. Which one of the methods of pay we have discussed is most common for young people?

4. Which one of the methods appeals to you the most? Would you rather be a craftsman and get paid for your work or would you rather get a salary and know how much you are getting paid each payday?

5. Which of the methods seems most secure financially? Why?

6. Which one of the methods we talked about do you think is the oldest methods for paying workers?

Name:___________________________________ Date:___________________

Time for a Quiz 😊

Let your knowledge about getting paid flow…

1. Johnny gets paid $25 for each nose ring he makes. He made 35 in Jan, 39 in Feb and 67 in Mar. How much money did Johnny get for his earrings in the three months combined?

2. Maude makes $37.50 an hour at the factory. Last week she worked 65 hours and this week she worked 60 hours. She gets paid overtime each week for all hours over 40 in a week. How much is Maude getting paid for the two weeks?

3. Dontae sells cars for a living. He has a salary of $36,000 a year. He also gets $125 for each car he sells. In August he sold 14 cars. How much money did Dontae make in August?

4. Kathy cuts hair at her salon. Last week she cut 35 customers hair. She averaged $5 in tips for each customer. How much did Kathy make in tips?

5. Kyle is a tattoo artist and on his latest masterpiece he worked for 6 hours. He is paid $125 an hour and the customer gave him a $50 dollar tip. How much did he get for that tattoo?

6. Maggie is a social worker making $36,000 a year. She is paid bi-weekly. How much does she get each pay period (before taxes)?

7. Javier is an Uber driver and on his last fare the bill was $110. The customer gave Javier a 15% tip. How much was his tip?

8. Cassandra works at Wegman's making $17.50 an hour. Last week she worked 55 hours and Wegman's pays their employees overtime for any hours over 40. How much did Cassandra make last week?

9. Morty is a real estate agent and he just sold his most expensive house ever, $450,000. His commission is 3%. How much did he make on the sale?

10. The small-town police officer gets a bonus for each ticket he writes. Last month he wrote 125 tickets. He gets $25 for each ticket written up to 100 and $50 for each ticket written over 100. How much does officer Barney make for writing 125 tickets?

Short answer. Give the definition of the following terms:

11. Piecemeal/piecework

12. Overtime

13. Commission

14. Salary

15. Hourly pay

16. Tips/gratuities

17. Bi-weekly pay

18. Time and a half

19. Bi-monthly pay

20. Commission plus salary

Lesson 4: Taxes and Paystubs

Overview

In the last lesson we learned about making money, but we focused only on gross pay, earning before deductions. In this lesson we will learn about the different taxes that are taken out of each paycheck. We will learn how they are calculated and what to expect each pay day. We will also learn how to read a paystub and how knowing a few basic math skills will help you predict your pay. This, like budgets and wages, is a skill that you will use for your entire working life.

Learning Objectives

In this lesson students will learn:

- How to read a paystub and understand the difference between gross and net pay.
- About some of the different deductions that can appear on a paystub and how they can affect net pay.
- Several of the key terms when working with pay, taxes, and various deductions.
- How to do quick calculations on expected pay after all the deductions have been accounted for

Student Tasks

__ 1. Read and understand a paystub, including gross and net pay, taxes, and deductions.
__ 2. Read a tax table to determine income tax rate for your wage
__ 3. Calculate gross pay given net pay and deductions. Given this information, determine what the 'real' rate of pay is (net pay divided by hours worked, if hourly, net pay times pay periods per year for salary)
__ 4. Learn about how living in different states can affect 'real' pay for same job.

Vocabulary

Net Pay: Amount of pay received after all deductions and taxes
Paystub: Document showing hours worked, gross and net pay and all deductions.
Income tax: Tax paid by employee based on current tax rates. Can be both federal and state
YTD: Year to Date, a summary of all earnings and deductions so far in the calendar year.
Deductions: Amount withheld from a check. Can encompass taxes, union dues, insurance contributions, child support, garnishments, etc.

Summary

Getting paid for your time, good and services is great, seeing how much can get removed from your check for taxes and other deductions is not so great. It is essential that all workers understand how to read a paystub and also understand everything on a paystub. Everyone should be able to accurately estimate their net pay given their wages and the expected deductions. Having a check that is vastly different than expected, could result in a financial problem. Knowing what to expect should be second nature once a person enters the work force.

Name:____________________________________ Date:____________________

Activity 1: Reading a paystub

A paystub is a record of earnings and deductions. This is provided each pay period (payday). Many times, they are attached to a check, however if an employee has direct deposit (money goes directly into a checking account) then the paystub is available online. There are many different versions of a paystub, but they all need to contain the same information. These include:

1. Employees Name and Address
2. Pay period (dates)
3. Gross wages
4. Taxes, deductions, and contributions (such as a retirement account)
5. Net pay
6. YTD information

Using the paystub below, identify the six areas listed above. Circle and label each area.

Sample Company Name
Sample Company Address

EARNING STATEMENT

EMPLOYEE NAME / ADDRESS	SSN	REPORTING PERIOD	PAY DATE	# 6154
Employee Name Employee Address	XXX-XX-1234	02/07/2018 - 02/13/2018	02/14/2018	Employee # 7859

INCOME	RATE	HOURS	CURRENT PAY	DEDUCTIONS	TOTAL	YTD TOTAL
GROSS EARNING	$20	40	$800.00	STATUTORY DEDUCTIONS		
				FICA-MEDICARE	$11.60	$81.20
				FICA SOCIAL SECURITY	$49.60	$347.20
				FEDERAL TAX	$108.10	$756.70
				STATE TAX	$40.00	$280.00

YTD GROSS	YTD DEDUCTIONS	YTD NET PAY	TOTAL	DEDUCTIONS	NET PAY
$5,600.00	$1,465.10	$4,134.90	$800.00	$209.30	$590.70

Using the paystub above, answer the following questions:

1. What is the YTD net pay (take home pay for the year)? ______________________
2. What is the gross pay for this pay period? _________________________
3. How much was taken out for federal tax YTD? _________________________
4. What is the pay date? _____________________________

5. How many hours did this employee work this pay period? ____________________
6. How much money was taken out for state tax for this pay period?

   ____
7. What is the YTD for all deductions? ________________________
8. What is the net pay for the pay period? ________________________________

Below is another example of a paystub.

The University of North Carolina at Chapel Hill 103 South Building, Campus Box 9100 Chapel Hill, NC 27599-9100	Pay Group: SPN-SHRA Non-Exempt Pay Begin Date: 07/10/2017 Pay End Date: 07/23/2017	Business Unit: UNCCH **Advice #: 000000002214873** Advice Date: 08/04/2017

Employee Name 123 Franklin St CHAPEL HILL, NC 27517	Employee ID: 000000000 Department: 260108-WSEE-HR Information Mgmt Location: OHR-Ofc of the Vice Chancellor Job Title: Admin Support Specialist Pay Rate: $45,000.00 Annual	**TAX DATA:**	**Federal**	**NC State**
		Tax Status:	Single	Single
		Allowances:	0	0
		Addl. Percent:		
		Addl. Amount:		

HOURS AND EARNINGS

Description	Rate	Current Hours	Current Earnings	YTD Hours	YTD Earnings
Regular	20.346846	74.50	1,515.84	855.00	17,446.65
Sick	20.346846	3.50	71.21	19.50	395.51
Bonus Leave	20.346846	2.00	40.69	16.00	325.27
Adverse Weather Cond III Close			0.00	3.00	60.81
Civil Leave			0.00	8.00	162.23
Holiday			0.00	72.00	1,459.97
MobileCommunication Device-$70			0.00		560.00
Overtime @ .50 Time			0.00	14.50	147.50
Overtime - Straight Time			0.00	14.50	295.04
Regular (Overtime Week)			0.00	360.00	7,296.84
Vacation			0.00	27.50	557.39
TOTAL:		**80.00**	**1,627.74**	**1,390.00**	**28,707.21**

TAXES

Description	Current	YTD
Fed Withholdng	182.98	3,319.78
Fed MED/EE	22.12	394.81
Fed OASDI/EE	94.58	1,688.15
NC Withholdng	61.00	1,126.00
TOTAL:	**360.68**	**6,528.74**

BEFORE-TAX DEDUCTIONS

Description	Current	YTD
TSERS - Retirement	97.66	1,688.82
Critical Illness	32.10	513.60
UNC Traffic Office - Parking	26.51	425.84
NC Flex Group Life Employee	12.70	203.20
Dental Plan	10.61	169.76
Cancer Plan	7.59	121.44
State Health Plan 80/20	7.52	120.32
Vision Plan	4.29	68.64
NC Flex Voluntary AD&D Empl	0.85	13.60
TOTAL:	**199.83**	**3,325.22**

AFTER-TAX DEDUCTIONS

Description	Current	YTD
NC State Empl Credit Union	25.00	425.00
Reliance Standard AD&D Emplye	2.00	32.00
TOTAL:	**27.00**	**457.00**

EMPLOYER PAID BENEFITS

Description	Current	YTD
TSERS - Retirement	278.83	4,685.51
State Health Plan 80/20	239.74	3,835.84
Imputed Income for LIF600*	0.00	157.48
***TAXABLE**		

	TOTAL GROSS	FED TAXABLE GROSS	TOTAL TAXES	TOTAL DEDUCTIONS	NET PAY
Current	1,627.74	1,427.91	360.68	226.83	1,040.23
YTD	28,707.21	25,539.47	6,528.74	3,782.22	18,396.25

LEAVE BALANCES/ACTIVITY	VACATION	SICK
Year Begin Balance	167.83	244.00
Earned This Year	79.33	56.00
Used This Year	33.50	27.50
End Balance	**213.66**	**272.50**
LEAVE DATA VALID THRU:		**07/23/2017**
For current and detailed leave information, log into TIM		

NET PAY DISTRIBUTION

	Account Type	Account Number	Deposit Amount
Advice #000000002214873	Checking	XXXXX000000	1,040.23
TOTAL:			**1,040.23**

Name:_________________________________ Date:__________________

Notice on this paystub there is a lot more information. At first glance, it can be hard to read. It does follow the same example as the first one. The basics are still there. Take a moment to look it over and then answer the following questions.

1. What are the YTD earnings (gross pay)? ___________________________________
2. How much was taken out just for taxes this pay period? _________________________
3. What are the total deductions for this pay period? This includes before and after-tax deductions. _____________________________
4. What is the YTD federal tax (withholding)? _______________________________
5. What is this employee's hourly rate of pay? _______________________________
6. What is the pay period for this paystub? __________________________________
7. What is the real pay, hourly, for this employee this period? (Net pay divided by total hours worked)? __________________________________
8. How often is this employee paid? (monthly, bi-weekly, bi-monthly, weekly) ________________________________
9. How many pay periods are in one year for this employee? ______________________
10. What is the real pay, salary, for this employee for a year? (Net pay multiplied by the number of pay periods) _________________________________

As you can see, a paystub can be as simple or as complex as you want. All of them need to have the basics. The essential parts such as name, net, and gross pay, pay period and deductions are what most people look at each time. Learning to read and understand a paystub is important no matter who you are or what you do for a living. Remember it is your money, it is your responsibility to make sure you are paid correctly. Discrepancies can mean less money or even more money than expected which could result in having to pay money back in the future ☹

Taxes…

Taxes are inevitable part of everyone's life. Taxes can come in the form of sales tax, income tax, property tax, inheritance tax, etc. In this lesson we are going to focus on payroll taxes. This includes a variety of taxes that all have different rates and applications.

Let's look at a few of the most common taxes that you will see on your paystub.

Income tax:

Federal: This is a tax by the federal government. It is money paid to the federal government to support the country. This includes money for defense, education, and infrastructure. The amount paid varies by income. This taxed is paid by everyone who makes more than $310 bi-weekly (every 2 weeks).

State: This tax is levied by certain states on your income. This tax goes to the state to help fund the state's government and state projects. This includes state roads, state employees and buildings and education. The rate varies from $0 in states like Nevada and Wyoming to a flat tax rate of 4.55% in Colorado to graduated rates of 1% to 13.3% in California. The links to these varied rates can be found on the internet. As these rates can vary state to state it is important to know your state's income tax rate when calculating how much you will pay to the state each paycheck.

Payroll Taxes:

Social Security: This tax is used to fund the retirement and disability programs used by millions in the US. This is a flat 6.2% tax on the first $137,700 of yearly income. Any income over this amount is not subject to Social Security tax.

Medicare: This tax pays for health insurance for people over 65 and those who have disabilities. This tax is a flat 1.45% of your income. This rate increases to 2.55% for those making over $200,000 a year.

The following tables show the amount of federal tax withheld for a single person getting paid bi-weekly.

To find out your expected tax, find your gross pay for two weeks in the left-hand column. Find your number of allowances (as filled out on your W-4 form). The number that corresponds with your allowances and wage amount is your federal tax.

2021 Wage Bracket Method Tables for Manual Payroll Systems With Forms W-4 From 2019 or Earlier

BIWEEKLY Payroll Period

If the **Wage Amount** (line 1a) is		**SINGLE** Persons										
		And the number of allowances is:										
		0	1	2	3	4	5	6	7	8	9	10
At least	But less than	The Tentative Withholding Amount is:										
$0	$155	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$155	$165	$1	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$165	$175	$2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$175	$185	$3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$185	$195	$4	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$195	$205	$5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$205	$215	$6	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$215	$225	$7	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$225	$235	$8	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$235	$245	$9	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$245	$255	$10	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$255	$265	$11	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$265	$275	$12	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$275	$285	$13	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$285	$295	$14	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$295	$305	$15	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$305	$315	$16	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$315	$325	$17	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$325	$335	$18	$1	$0	$0	$0	$0	$0	$0	$0	$0	$0
$335	$345	$19	$2	$0	$0	$0	$0	$0	$0	$0	$0	$0
$345	$355	$20	$3	$0	$0	$0	$0	$0	$0	$0	$0	$0
$355	$365	$21	$4	$0	$0	$0	$0	$0	$0	$0	$0	$0
$365	$375	$22	$5	$0	$0	$0	$0	$0	$0	$0	$0	$0
$375	$385	$23	$6	$0	$0	$0	$0	$0	$0	$0	$0	$0
$385	$395	$24	$7	$0	$0	$0	$0	$0	$0	$0	$0	$0
$395	$405	$25	$8	$0	$0	$0	$0	$0	$0	$0	$0	$0
$405	$415	$26	$9	$0	$0	$0	$0	$0	$0	$0	$0	$0
$415	$425	$27	$10	$0	$0	$0	$0	$0	$0	$0	$0	$0
$425	$435	$28	$11	$0	$0	$0	$0	$0	$0	$0	$0	$0
$435	$445	$29	$12	$0	$0	$0	$0	$0	$0	$0	$0	$0
$445	$455	$30	$13	$0	$0	$0	$0	$0	$0	$0	$0	$0
$455	$465	$31	$14	$0	$0	$0	$0	$0	$0	$0	$0	$0
$465	$475	$32	$15	$0	$0	$0	$0	$0	$0	$0	$0	$0
$475	$485	$33	$16	$0	$0	$0	$0	$0	$0	$0	$0	$0
$485	$495	$34	$17	$1	$0	$0	$0	$0	$0	$0	$0	$0
$495	$505	$35	$18	$2	$0	$0	$0	$0	$0	$0	$0	$0
$505	$515	$36	$19	$3	$0	$0	$0	$0	$0	$0	$0	$0
$515	$525	$37	$20	$4	$0	$0	$0	$0	$0	$0	$0	$0
$525	$535	$38	$21	$5	$0	$0	$0	$0	$0	$0	$0	$0
$535	$565	$40	$23	$7	$0	$0	$0	$0	$0	$0	$0	$0
$565	$595	$44	$26	$10	$0	$0	$0	$0	$0	$0	$0	$0
$595	$625	$47	$29	$13	$0	$0	$0	$0	$0	$0	$0	$0
$625	$655	$51	$32	$16	$0	$0	$0	$0	$0	$0	$0	$0
$655	$685	$55	$35	$19	$2	$0	$0	$0	$0	$0	$0	$0
$685	$715	$58	$38	$22	$5	$0	$0	$0	$0	$0	$0	$0
$715	$745	$62	$42	$25	$8	$0	$0	$0	$0	$0	$0	$0
$745	$775	$65	$45	$28	$11	$0	$0	$0	$0	$0	$0	$0
$775	$805	$69	$49	$31	$14	$0	$0	$0	$0	$0	$0	$0
$805	$835	$73	$53	$34	$17	$1	$0	$0	$0	$0	$0	$0
$835	$865	$76	$56	$37	$20	$4	$0	$0	$0	$0	$0	$0
$865	$895	$80	$60	$40	$23	$7	$0	$0	$0	$0	$0	$0

2021 Wage Bracket Method Tables for Manual Payroll Systems With Forms W-4 From 2019 or Earlier

BIWEEKLY Payroll Period

If the Wage Amount (line 1a) is		SINGLE Persons										
		And the number of allowances is:										
At least	But less than	0	1	2	3	4	5	6	7	8	9	10
		The Tentative Withholding Amount is:										
$895	$925	$83	$63	$44	$26	$10	$0	$0	$0	$0	$0	$0
$925	$955	$87	$67	$47	$29	$13	$0	$0	$0	$0	$0	$0
$955	$985	$91	$71	$51	$32	$16	$0	$0	$0	$0	$0	$0
$985	$1,015	$94	$74	$54	$35	$19	$2	$0	$0	$0	$0	$0
$1,015	$1,045	$98	$78	$58	$38	$22	$5	$0	$0	$0	$0	$0
$1,045	$1,075	$101	$81	$62	$42	$25	$8	$0	$0	$0	$0	$0
$1,075	$1,105	$105	$85	$65	$45	$28	$11	$0	$0	$0	$0	$0
$1,105	$1,135	$109	$89	$69	$49	$31	$14	$0	$0	$0	$0	$0
$1,135	$1,165	$112	$92	$72	$53	$34	$17	$1	$0	$0	$0	$0
$1,165	$1,195	$116	$96	$76	$56	$37	$20	$4	$0	$0	$0	$0
$1,195	$1,225	$119	$99	$80	$60	$40	$23	$7	$0	$0	$0	$0
$1,225	$1,255	$123	$103	$83	$63	$44	$26	$10	$0	$0	$0	$0
$1,255	$1,285	$127	$107	$87	$67	$47	$29	$13	$0	$0	$0	$0
$1,285	$1,315	$130	$110	$90	$71	$51	$32	$16	$0	$0	$0	$0
$1,315	$1,345	$134	$114	$94	$74	$54	$35	$19	$2	$0	$0	$0
$1,345	$1,375	$137	$117	$98	$78	$58	$38	$22	$5	$0	$0	$0
$1,375	$1,405	$141	$121	$101	$81	$62	$42	$25	$8	$0	$0	$0
$1,405	$1,435	$145	$125	$105	$85	$65	$45	$28	$11	$0	$0	$0
$1,435	$1,465	$148	$128	$108	$89	$69	$49	$31	$14	$0	$0	$0
$1,465	$1,495	$152	$132	$112	$92	$72	$52	$34	$17	$1	$0	$0
$1,495	$1,525	$155	$135	$116	$96	$76	$56	$37	$20	$4	$0	$0
$1,525	$1,555	$159	$139	$119	$99	$80	$60	$40	$23	$7	$0	$0
$1,555	$1,585	$163	$143	$123	$103	$83	$63	$43	$26	$10	$0	$0
$1,585	$1,615	$166	$146	$126	$107	$87	$67	$47	$29	$13	$0	$0
$1,615	$1,645	$170	$150	$130	$110	$90	$70	$51	$32	$16	$0	$0
$1,645	$1,675	$173	$153	$134	$114	$94	$74	$54	$35	$19	$2	$0
$1,675	$1,705	$177	$157	$137	$117	$98	$78	$58	$38	$22	$5	$0
$1,705	$1,735	$181	$161	$141	$121	$101	$81	$61	$42	$25	$8	$0
$1,735	$1,775	$189	$165	$145	$125	$105	$85	$66	$46	$28	$11	$0
$1,775	$1,815	$198	$170	$150	$130	$110	$90	$70	$51	$32	$15	$0
$1,815	$1,855	$207	$174	$155	$135	$115	$95	$75	$55	$36	$19	$3
$1,855	$1,895	$216	$179	$159	$140	$120	$100	$80	$60	$40	$23	$7
$1,895	$1,935	$224	$188	$164	$144	$125	$105	$85	$65	$45	$27	$11
$1,935	$1,975	$233	$197	$169	$149	$129	$109	$90	$70	$50	$31	$15
$1,975	$2,015	$242	$206	$174	$154	$134	$114	$94	$75	$55	$35	$19
$2,015	$2,055	$251	$214	$179	$159	$139	$119	$99	$79	$60	$40	$23
$2,055	$2,095	$260	$223	$187	$164	$144	$124	$104	$84	$64	$45	$27
$2,095	$2,135	$268	$232	$196	$168	$149	$129	$109	$89	$69	$49	$31
$2,135	$2,175	$277	$241	$204	$173	$153	$133	$114	$94	$74	$54	$35
$2,175	$2,215	$286	$250	$213	$178	$158	$138	$118	$99	$79	$59	$39
$2,215	$2,255	$295	$258	$222	$186	$163	$143	$123	$103	$84	$64	$44
$2,255	$2,295	$304	$267	$231	$194	$168	$148	$128	$108	$88	$69	$49
$2,295	$2,335	$312	$276	$240	$203	$173	$153	$133	$113	$93	$73	$53
$2,335	$2,375	$321	$285	$248	$212	$177	$157	$138	$118	$98	$78	$58
$2,375	$2,415	$330	$294	$257	$221	$184	$162	$142	$123	$103	$83	$63
$2,415	$2,455	$339	$302	$266	$230	$193	$167	$147	$127	$108	$88	$68
$2,455	$2,495	$348	$311	$275	$238	$202	$172	$152	$132	$112	$93	$73
$2,495	$2,535	$356	$320	$284	$247	$211	$177	$157	$137	$117	$97	$77
$2,535	$2,575	$365	$329	$292	$256	$220	$183	$162	$142	$122	$102	$82
$2,575	$2,615	$374	$338	$301	$265	$228	$192	$166	$147	$127	$107	$87
$2,615	$2,655	$383	$346	$310	$274	$237	$201	$171	$151	$132	$112	$92

Let's try a couple examples:

1. Eduar made $900 on his check for two weeks work. He claims 0 on his W-4. To find his federal tax for this pay period, he will find his wage amount on the left side of the form, in this case it is at the top of the page and falls between $895 and $925. Finding the column with 0 allowance, Eduar sees that his federal tax is $83.
2. Maggie made $1425 these past two weeks. She has 6 allowances on her W-4. She finds her wage amount in the row that is between $1405 and $1435. Following that row over to the column with 6 allowances, Maggie will see that her federal tax rate is $28.

Notice that although Eduar made less money than Maggie, he pays more in taxes. This is because Maggie has 6 allowances. This means that she has 6 people (including herself) that she is responsible. Her tax rate is lower because of her additional allowances.

Figuring out state tax can be much easier. If your state has no state income tax, you will not have to pay this tax. If your state has a flat tax, you will need to find out this rate and multiply it by your income to determine your state tax. It gets more interesting in states like California that have a graduated tax rate. This means the more money you make the higher your tax.

For example, California has 10 different state tax rates. These range from 1% for yearly income up to $9,202 to 13.3% for those making over $1,000,000. This is a large difference and can add up to thousands of dollars.

Let's look at a couple of examples:

1. Neil lives in Colorado that has a flat tax of 4.55%. He makes $2,200 every two weeks. His tax for Colorado is $100.10. (4.55% multiplied by $2,200)
2. Alex plays professional baseball in Los Angeles, California. His yearly salary is $4,500,00. He is paid twice a month. His pay before taxes each pay period is $187,500. Since he makes more than $1,000,00 a year and lives in California, his state tax rate is 13.3%. His state tax is $24,937.50 (more money than many people make in 1 year!!!).
3. Horatio lives in Alaska and flies a mail plane to remote villages. He is a new pilot and only makes $32,000 a year. Due to this type of job, he is paid weekly. Fortunately for Horatio, there is no state income tax in Alaska. His check every week is $615.38, and he pays $0 in state tax.

These are a few examples of how taxes can affect your take home pay (pay after all taxes and deductions). Everybody's circumstance is different. Your taxes will vary with your income, location, and allowances (dependents).

Name:________________________________ Date:__________________

Activity 2: How much taxes do I pay each pay period?

Using the previous tax tables and the information given below, determine the taxes for each person. Remember you will need to find federal, state, social security, and Medicare taxes.

State tax rates:

State Individual Income Tax Rates and Brackets, 2021

	Single Filer		
State	**Rates**		**Brackets**
Alabama (a, b, c)	2.00%	>	$0
	4.00%	>	$500
	5.00%	>	$3,000
Alaska	none		
Arizona (d, f, g, w, pp)	2.59%	>	$0
	3.34%	>	$27,272
	4.17%	>	$54,544
	4.50%	>	$163,632
	8.00%	>	$250,000
Arkansas (h, i, o, dd, oo)	2.00%	>	$0
	4.00%	>	$4,000
	5.90%	>	$8,000
California (a, i, k, l, m, n, o)	1.00%	>	$0
	2.00%	>	$8,932
	4.00%	>	$21,175
	6.00%	>	$33,421
	8.00%	>	$46,394
	9.30%	>	$58,634
	10.30%	>	$299,508
	11.30%	>	$359,407
	12.30%	>	$599,012
	13.30%	>	$1,000,000
Colorado (a, p)	4.55%	>	$0

Looking at the table for Alabama i.e., the tax rate is 2% between $0 and $500, 4% between $500 and $3,000 and 5% for income over $3,000.

Remember that Social Security tax is 6.2% up to $137,700. Medicare is 1.45% up to $200,000 and 2.35% for income over $200,000. This income is based on yearly income.

Use the table below to determine federal tax. Note: this is yearly income.

Tax rate	Taxable income bracket	Tax owed
10%	$0 to $9,875	10% of taxable income
12%	$9,876 to $40,125	$987.50 plus 12% of the amount over $9,875
22%	$40,126 to $85,525	$4,617.50 plus 22% of the amount over $40,125
24%	$85,526 to $163,300	$14,605.50 plus 24% of the amount over $85,525
32%	$163,301 to $207,350	$33,271.50 plus 32% of the amount over $163,300
35%	$207,351 to $518,400	$47,367.50 plus 35% of the amount over $207,350
37%	$518,401 or more	$156,235 plus 37% of the amount over $518,400

For the following questions, figure that all hourly workers work 40 hours per week and have 0 allowances. Fill in the table for costs for **each pay period**.

Directions:

1. Find the gross wages per pay period.
    a. If the person is paid by the hour multiply hourly wage by 40 to get wages per week. Number this is $23 * 40 = $920
    b. If they are paid bi-weekly (26 pay periods) this means that each pay period is 2 weeks.
    c. The gross pay would be weekly pay times 2. Number 1: $920 * 2 = $1840
    d. For salary workers, divide yearly salary by the number of pay periods. Number 2: $36,000/24 = $1,500
2. Determine federal tax.
    a. After finding the wages per pay period, multiply this by the number of pay periods. Number 1: #1,840 * 26 = $47,840
    b. Using the table for federal tax, find the appropriate tax rate. Number 1: $47,840 falls into the 22% tax bracket.
    c. Determine yearly federal tax by following the formula for tax owed. Number 1: $4,617.50 + ($47,840 - $40,125) * 0.22 = $6,314.80.
    d. Using the yearly federal tax, divide this number by the number of pay periods. Number 1. $6,314.8/26 = $242.88. This is federal tax per pay period.
3. Determine state tax using table provided.
    a. Find the state where the worker resides. Determine tax bracket by using yearly income. Number 1: State is Alabama and yearly income is $47,840. Since this is over $3,00 the tax is 5%. $47,840 * 0.05 = $2,392.
    b. Divide state tax by number of pay periods. Number 1: $2,392/26 = $92
4. Find Social Security tax.
    a. Income up to $137,000 per year is taxed at 6.2%. There is no SS tax for income over this amount.
    b. Multiply gross wages per pay period by 6.2%. Number 1: $1,840 * 0.062 = $114.08
5. Determine Medicare tax.
    a. Medicare is 1.45% up to $200,000 and 2.35% for income over $200,000.
    b. Number 1: Since $47,840 is less than $200,000, tax is 1.45%. $47,840 * 0.0145 = $693.68. This is yearly Medicare tax.
    c. Divide yearly medical tax by number of pay periods. Number 1: $693.68/26 = $26.68. This is medics are tax per pay period.
6. Total taxes.
    a. Add all taxes together. Number 1: $242.88 (fed) + $92 (state) + $114.08 (SS) + $26.69 (Med) = $475.65
7. Net Pay.
    a. Subtract total tax from gross pay. Number 1: $1,840 - $475.65 = $1,364.35

Num	Name	State	Salary/Wage	# of Pay periods	Gross Wages per pay period	Federal Tax	State Tax	SS Tax	Medicare	Total Tax	Net Pay
1	Cho	Alab	$23/hr.	26							
2	Ginny	Cal	$36k/yr.	24							
3	Fred	Alaska	$15/hr.	52							
4	Neville	Cal	$1.2 mil/yr.	12							
5	Luna	Alab	$65k/yr.	26							
6	Draco	Ark	$21.5/hr.	52							
7	Harry	Alaska	$7.85/hr.	52							
8	Ron	Cal	$37/hr.	26							
9	Hermione	AZ	$42,500/yr.	24							
10	George	Alab	$350k/yr.	26							

Deductions: What else comes out of my check?

Besides taxes, there are additional monies that come out of your check. These are called deductions. Some deductions are pre-tax, while others happen after taxes. If a deduction happens pre-tax, the deduction is removed from the gross pay before taxes are assessed. Your taxable income is less. Sometimes changing a deduction from after-tax to pre-tax can result in an increase in your earnings…more money 😊

The following are a few examples of deductions:

Health insurance premium: This deduction is the employee's share of the cost of health insurance. This deduction can be both pre and after tax.

IRA/401K contribution: This money is deducted from your check for retirement. Like health insurance, this can be both pre and after tax.

Child support: This money is removed to pay for child support. This happens when a person has difficulty paying child support on time and the court mandates that the money be taken from each check. This deduction is made after tax.

Garnishment: Like child support, this deduction is a court ordered mandate requiring a certain amount of money to be removed from each check until the order is paid off.

Union dues: This money is removed from each check for those workers who belong to a union and whose union contract mandates that dues be taken out of each check. This deduction is made after tax.

Meals: Some companies allow their workers to have the cost of meals removed from each check. This makes it easier for the employee to eat at work without worrying about paying each time they eat. This deduction is also made after tax.

Life insurance premiums: Like health insurance premiums, this deduction is used to pay for life insurance. This deduction can be both before and after taxes.

Some of these deductions are voluntary while others are mandatory. Union dues, for example, may be mandatory on one job but voluntary on another. It is up to you to understand what the different deductions are and how they affect you. Remember it is your money, you earned it! Do the research, ask the questions, understand where your money goes each pay period.

Name:____________________________________ Date:____________________

Activity 3: A quick overview of tax status.

While it is important to understand how taxes are taken out of your check every pay day, it is also important to look at your taxes on a yearly basis. Most Americans file their taxes during the first 3 months of every year. This is a report of income and determines whether a taxpayer has over or under paid their taxes for the year. If you make less than $12,220 you do not need to file, but you may get money back on your return if you do. It can be worth it to file your taxes just in case you overpaid!

The following table is a list of the rates that people are taxed depending upon their income. You will notice that the more money you make, the higher your tax rate. Many states follow this same graduated scale.

Tax rate	Taxable income bracket	Tax owed
10%	$0 to $9,875	10% of taxable income
12%	$9,876 to $40,125	$987.50 plus 12% of the amount over $9,875
22%	$40,126 to $85,525	$4,617.50 plus 22% of the amount over $40,125
24%	$85,526 to $163,300	$14,605.50 plus 24% of the amount over $85,525
32%	$163,301 to $207,350	$33,271.50 plus 32% of the amount over $163,300
35%	$207,351 to $518,400	$47,367.50 plus 35% of the amount over $207,350
37%	$518,401 or more	$156,235 plus 37% of the amount over $518,400

To read this table, find your yearly income in the middle column first. The right-hand column explains the tax owed. Note: your tax rate varies depending upon yearly income.

Let's try a couple exercises:

Eduar made $63,000 last year working at a car dealership. He is curious what his tax rate is, so he brings up a tax table. Looking at it, he sees that his income falls between $40, 126 and $85,525. This puts him in the 22% tax bracket. He sees that he pays $4,617.50 plus $5,032.50 (his earnings $63,000 - $40,125 = $22,875. This number is multiplied by 22%). His total tax is $9,650. This equates to about 15% of his earnings.

Solve the following problems using the tax table:

	Name	Earnings (yearly)	Tax Bracket	Tax owed
1.	Marsha	$26,000		
2.	Greg	$97,500		
3.	Jan	$250,000		
4.	Peter	$42,500		
5.	Cindy	$125,250		
6.	Carol	$35,500		
7.	Bobby	$69,000		
8.	Mike	$1,000,000		

Remember this is for filing taxes each year. It is a simplified method for estimating your tax bill based on your income.

Quick question: Why does the tax rate increase as you earn more money? Is this fair or should everyone pay the same percentage, no matter their income?

Name:____ Date:______________________

Quick quiz

Now that you have learned about how taxes and deductions can affect your pay, it is time to answer a few questions 😊

1. What are the benefits financially (from a tax perspective) to living in different states?

2. Name 3 types of deductions other than taxes that can be taken out of your check:
    a. ___________________________
    b. ___________________________
    c. ___________________________

3. True or False: Social security tax helps the government create a strong defense against other countries.
    a. True
    b. False

4. What are two types of taxes that can be taken out of your check?
    a. ___________________________
    b. ___________________________

5. If an employee is paid bi-weekly, how many pay periods are in one year?

6. ______________________________ is the name for your pay after all taxes and deductions (also called take home pay).

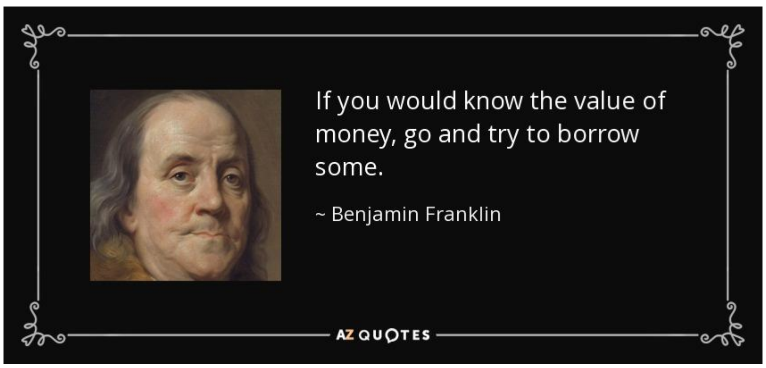
7. What are the benefits or problems of having a flat income tax? Explain your answer.

Bonus question: Show your work for credit…

Scott makes $1,500 every paycheck. He lives in Colorado and pays 4.55% state sales tax. His federal tax for the pay period is $106.55. He has a 401K deduction of $50 taken out of each check before taxes. He pays 6.2% Social Security tax and 1.45% Medicare tax. Unfortunately for Scott he also has a $75 child support garnishment on every check. How much does Scott take home after all taxes and deductions for this pay period?

Lesson 5: Borrowing and Investing

Overview:
Investing and borrowing are essentially the same thing. The only difference is who gets the money in the end. The formulas used for determing interest do not change whether you are investing a little at a time or you work for an investment company. In this lesson, you will learn the ideas behind interest and how it affects money. You will learn the basic formulas used to determine interest. Most importantly you will learn how important it is to invest early and why borrowing can be a dangerous financial path



Learning Objectives:
In this lesson students will learn the basics of investing and borrowing.
This includes:

- simple interest
- compound interest
- cost of borrowing money
- the joy of letting your money work for you

The basic formulas for simple and compound interest will be used for the calculations. More advanced formulas will not be utilized as this is a basic introduction into investing and borrowing.

Student Tasks
__ 1. Learn the formulas for simple and compound interest
__ 2. Understand the true cost of borrowing money.
__ 3. Learn how a small amount of money invested early can grow over time.

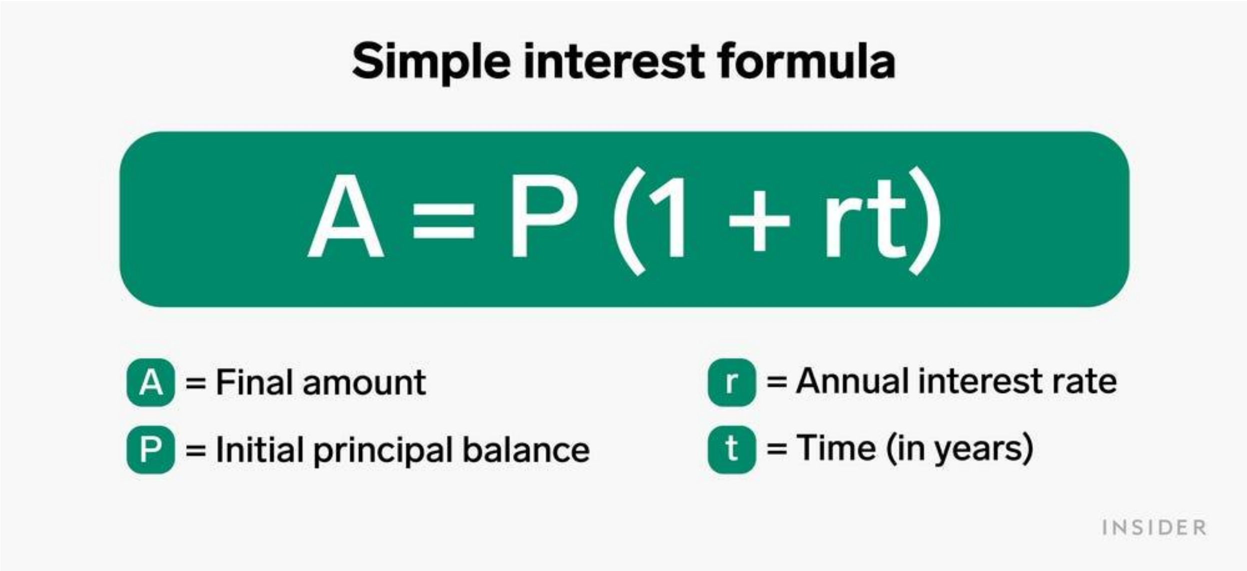
Vocabulary
Interest: Money paid at a specific for the money lent.
Simple Interest: Interest calculated only on principle part of loan.
Compound Interest: Interest earned on both principal and any interest earned previously.
Principal: Amount either borrowed or invested that may be subject to interest.
Rate: The number used to determine the amount of interest involved in the loan or investment.

Summary
Investing and borrowing are two aspects of financial management that need to be understood at least at the basic level in order to survive financially. Understanding how interest affects both the overall cost of goods and how you can make money work for you is essential to building a comfortable lifestyle. Just knowing how interest works can save you a lot of money throughout your lifetime. It is your money, use it wisely.

Name:___________________________________ Date:___________________

Activity 1: Simple Interest

Interest is money paid at a particular rate. Some may consider this a fee for borrowing money. This works for both borrowing money and investing. If you get a car loan through a bank, they will charge you a fee, interest charge, if you finance your car and do not pay the entire cost up front. This fee is determined by a set percentage rate that can vary depending on a variety of factors. If you put your money in a bank, the bank will pay you interest on your investment. For this activity we will look at simple interest. This is interest paid at a specific rate only on the principal or amount borrowed or invested.



A = The final amount earned, or owed, including original principal.

P = This principal can be either amount borrowed, or amount deposited into an interest-bearing account.

r = This is the annual interest rate. This number must be converted from a percentage to a decimal. For example, 3.5% interest converted to a decimal is 0.035.

t = This is number of years the money is either borrowed or invested. This number must be converted to a number if the length of time is not full years. For example, if the length of the loan is 18 months, it may be easier to look at it as divided by 12 as there are 12 months in a year. This would convert to 18/12 which is also 1.5. Converting to a decimal makes it easier to enter into a calculator.

Name:___________________________________ Date:___________________

Let's try a few problems calculating simple interest using our newfound formula. The first ones are done for you:

1. Jamar borrows $1000 from his bank to fix his car. The interest rate is 8% and the bank gives him 2 years to pay it back. How much does he have to pay back?
    a. Formula. A=P(1+rt)
        i. P = $1000
        ii. r = 8% = 0.08
        iii. t = 2
    b. Substitution:
        i. A = $1000(1 + (.08)(2))
        ii. A = $1000(1 + 0.16)
        iii. A = $1000(1.16)
        iv. A = $1160
2. Caza puts $5000 into an interest-bearing savings account earning him 1.5% interest. How much does he earn if he leaves his money in the account for 10 years and 4 months?
    a. Formula. A = P(1 + rt)
        i. P = $5000
        ii. r = 1.5% or 0.015
        iii. t = 10 years 4 months. Convert the 4 months to a fraction: 4/12. The total time is 10.33.
    b. Substitution:
        i. A = $5000(1 + (.015)(10.33))
        ii. A = $5000(1 + 0.15
        iii. A = $5000(1.15)
        iv. A = $5750
3. Hunter borrows $20,000 to buy a car. Because of his poor credit, the finance company gives him an interest rate of 12.5%, Hunter finances his car for 4 years. How much does Hunter pay in total?

4. Cheryl borrows $500 from her uncle. He charges her 1% interest and gives her one year to pay him back. How much does Cheryl have to pay?

Name:_________________________________ Date:__________________

5. Maris invests her inheritance of $50,000 at a wealth management company at a rate of 6% for 5 years. Unfortunately for Maris, she is only receiving simple interest for this investment. How much will he have at the end of her investment?

6. Kalueb loans his brother $8000 to help him out. He charges 3% interest, and his brother has 2.5 years to pay Kalueb back. How much does Kalueb get back?

7. Tamara invests $1500 in an interest-bearing savings account paying 3.5% interest. He forgets about the account and it sits for 20 years. How much is in there at the end?

8. Jerry needs a new Xbox costing $500. He needs to finance the purchase. He gets a rate of 8% and has 18 months to pay it off. How much does he owe on his Xbox?

9. Tad invests $2000 at 5% interest for 2 years. How much does he earn?

10. Mike is broke and has to borrow $1000 from a guy down the street, He gets a 25% rate and has 3 months to pay it back. How much does he pay back?

Name:________________________________ Date:__________________

Activity 1: Simple Interest, Part 2

Another way to look at interest is to just focus on the actual interest owed, not the final amount.

The formula is very similar to the previous one:

Simple Interest Formula

$$\boxed{I = P \times R \times T}$$

Where:

I = the Interest Money created in dollars

P = the "Principal" starting amount of money

R = the Interest Rate per year (in decimal form)

T = the Time the money is Invested, or Borrowed, in Years

This formula uses the same definitions, it is focused on just interest, owed, or paid.

Let's try a few: Remember we are just looking for interest, not the total amount due…

1. P = \$500, r = 4%
   Solution:
   a. I = P x r x t Prt
   b. I = \$500(0.04)(2)
   c. I = **\$40**

2. P = \$2500, r = 2.5%, t = 1 year
   Solution:
   a. I = P x r x t Prt
   b. I = \$2500(0.025)(1)
   c. I = **\$62.5**

Name:___________________________________ Date:___________________

1. P = $10,000, r = 5.75%, t = 15 years 6 months

2. P = $62,500, r = 1.5%, t = 72 months

3. P = $62,500, r = 4%, t = 6 years

4. P = $12,000, r = 3.25%, t = 36 months

5. P = $8,000, r = 22.9%, t = 2 years

6. P = $4020, r = 0%, t = 3 years

7. P = $15,000, r = 4%, t = 40 months

8. P = $100, r = 8.9%, t = ½ year

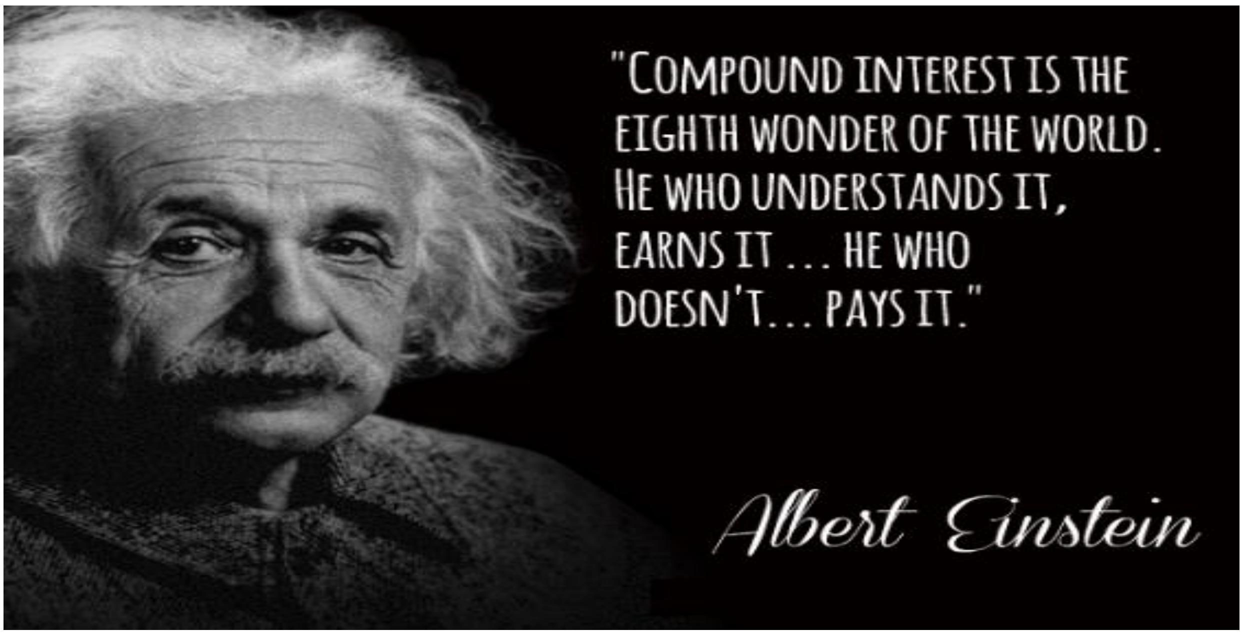
9. P = $4,800, r = 12%, t = 3 years

10. P = $7,500, r = 13%, t = 2 years.

Name:___________________________________ Date:___________________

Activity 2: Compound Interest

Remember that simple interest is interest on the principal only. Compound interest is interest that is based on both principal and interest. This interest is generally used on investments not on loans. With this is mind, it is important to understand that compound interest is much better in the long term than simple interest.



With this new idea comes a new formula. The nice thing is that the terms are all familiar to us by now…

$$A = P(1 + r/n)^{nt}$$

A = Future value (the amount you will have)

P = Principal (the amount you started with)

r = annual interest rate (for example, an APR or APY), expressed as a decimal

n = amount of times the interest is compounded per time period (t)

t = the amount of time (usually in years) that the money is saved, invested, or borrowed

Name:____________________________ Date:___________________

The only new term we have is n. This is the number of times that the money is compounded. For example, you may have an account that compounds every month. This means that n is 12. If the money is compounded every 6 months, n would be 2. It is the number of times per year.

Let's try a few examples.

How much money would you have if you invested $4000 at 4% interested for 3 years compounded monthly?

Formula: $A = P(1 + r/n)^{nt}$

a. $P = \$4000$, $r = 0.04$, $n = 12$, $t = 3$
b. $A = \$4000(1 + 0.04/12)^{(12)(3)}$
c. $A = \$4000(1 + 0.003)^{36}$
d. $A = \$4000(1.003)^{36}$
e. $A = \$4000(1.13)$
f. $A = \$4509$

You would have $4509 after 3 years, a gain of $509. If you put the money into a simple interest account, using the simple interest formula, you would have $4480. This is a gain of $29. If you kept your money in the account for 20 years, you would have $8,809, a nice gain for doing nothing but letting your money work for you! If you calculate the amount gained using simple interest you would have $7200. Compound interest is a gain of $1609 over the same period.

How much money would you have if you invested $10,000 at 6% interested for 10 years compounded quarterly (every 3 months)?

1. Formula: $A = P(1 + r/n)^{nt}$
   a. $P = \$10{,}000$, $r = 0.06$, $n = 4$, $t = 10$
   b. $A = \$10000(1 + 0.06/4)^{(4)(10)}$
   c. $A = \$10000(1 + 0.015)^{40}$
   d. $A = \$10000(1.015)^{36}$
   e. $A = \$10000(1.71)$
   f. $A = \$17{,}091$

No let's change the frequency rate to monthly instead of quarterly for the last problem:

1. Formula: $A = P(1 + r/n)^{nt}$
   a. $P = \$10{,}000$, $r = 0.06$, $n = 12$, $t = 10$
   b. $A = \$10000(1 + 0.06/12)^{(12)(10)}$
   c. $A = \$10000(1 + 0.005)^{120}$
   d. $A = \$10000(1.015)^{120}$
   e. $A = \$10000(1.81)$
   f. $A = \$18{,}193$

Name:___________________________________ Date:___________________

Now it is your turn…Find the future value A given the different parameters.

Here is the formula: $A = P(1 + r/n)^{nt}$

1. P = \$50,000. r = 8%, t = 15 years, compounded monthly

2. P = \$12,500, r = 4%, t = 20 years, compounded weekly

3. P = \$500,000, r = 6%, t = 30 years, compounded daily

4. P = \$5,500, t = 4%, t = 4.5 years, compounded bi-weekly

5. P = \$70,000, r = 6.5%, t = 8 years, compounded monthly

6. P = \$500, r = 12.5%, t = 10 years, compounded quarterly

7. P= \$6,000, r = 3.5%, t = 2 years, compounded monthly

8. P = $1,000,000, t = 8%, t = 10 years, compounded daily

Name:_______________________________ Date:_________________

9. P = $25,000, r = 4%, t = 15 years, compounded monthly

10. P = $25,000, r = 8%, t = 15 years, compounded monthly

Extra Credit Opportunity 😊

Little Johnny has a goal of having $50,000 in his retirement account in 15 years. He can get a rate of 6% and he knows that the account compounds daily. How much money does little Johnny need to invest to reach his goal of $50,000 in 15 years with a rate of 6% compounded daily? Please round your number to the nearest $10.

Validity

The lessons plans and materials in this curriculum project have been used in at least one for several years at a limited secure facility by two New York state accredited mathematics teachers. While slight changes or modifications have been used, the primary lessons have remained intact. These lessons have been part of a Consumer Math course to achieve mathematics credit to be applied towards graduation. These lessons are part of a Money Math unit designed to educate youths on the mathematics necessary in everyday life.

These lessons are also in use for an accredited Test Assessing Secondary Education (TASC), formerly known as the GED. As life skills and job readiness are part of a TASC program these lessons are used to educate students on commonly used mathematical concepts in preparation for life once they are on their own.

These lessons were chosen for this project as they constitute the mathematics needed for individuals becoming independent. Knowledge of budgets, taxes, and wages is important in that they are prevalent in everyday life. Students who have taken the Consumer Math course have expressed the importance of these lessons in preparation for life outside of the fence. Engaging with incarcerated youths, especially in mathematics, can be a daunting task. By teaching them the lessons contained in this paper, most of them have realized the need for even the rudimentary math necessary to survive financially on their own.

Conclusion

Algebra, geometry, algebra II, calculus are the core mathematics taught at the high school level in the United States. These courses provide essential academic concepts and methodology used in many professions and disciplines. These courses are necessary for many students pursuing positions in medicine, engineering, computer science, et al. However, they lack much of the practical mathematics necessity for many students who are future members of the work-force. According to the U.S. Bureau of Labor Statistics (Oews Chart), of the ten most common jobs in America, making up approximately 30 million people, only two of them require a college degree, registered nurses and operations mangers. The rest are jobs like retail sales, truck drivers and cashiers; jobs that do not require algebra II or geometry. These workers instead need a solid understanding of consumer or financial math. Unfortunately, the CCSS mathematics curriculum excludes many blue collar workers (and incarcerated youths). The fact that financial literacy is part of the social studies curriculum, not the mathematics curriculum, is a clear sign of the lack of practicality of the existing CCSS curriculum.

New York State allows for consumer math and business math to be taught to incarcerated youths as an accredited course towards high school requirement. This author has promoted this idea and as such, consumer math is taught after algebra 1 for most students who do not have credits in geometry or algebra II. Some of the older students, e.g., 17-21 year olds, who have a low chance of traditional graduation are placed in consumer or business math to help prepare them for life on their own. Personal finance is also used to supplement their education. The requirements to qualify for a TASC or GED diploma can be daunting for some, but consumer math is taught in such a way to make it accessible to all. These youths already have many obstacles in front of them and being able to provide them with a mathematics program that is useful in everyday life is essential. It is this author's hope that the curriculum contained in this paper can be helpful not only to mathematics teachers but in particular those teachers who teach incarcerated or at-risk youth.

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Appendix

Keys to Lessons

Lesson 2: Budgets, Vocabulary Quiz Key

1. An estimate of income and expenses for a set period.
2. The cost required for something or the money sent on something.
3. Money received, especially on a regular basis
4. A regular payment to a landlord for rental of a living area
5. Bills that may include water, gas, electricity, phone etc.
6. Something that is real or authentic, not fake or imagined
7. A contract that conveys property for certain specified time
8. The ability of a person to obtain goods or services based on the trust of it being paid back
9. A practice by which a company provides a guarantee against loss or damage
10. The process of maintaining or preserving something
11. Something that is owed or due.
12. A fixed regular payment typically paid on a daily or weekly basis from an employer to an employee.
13. A fixed regular payment, paid on a bi-weekly or monthly schedule from employer to employee
14. Total income before taxes or deductions
15. Total income after taxes and deductions (take home pay).

Lesson 3 Activities Answer Key:

Activity 1: Piecemeal

1. $500
2. $2,500
3. $6,400
4. $12,000
5. $270
6. $2,100
7. $3,200
8. $120
9. $765

Activity 2: Getting paid by the Hour

1. $595
2. $375
3. $800
4. $201.25
5. $1,400

Activity 2: Getting paid by the Hour (part 2)

1. $2,170
2. 40, $640, 17, $408, $1,048
3. 40, $520, 8, $156, $676
4. 40, $460, 20, $345, $805
5. 40, $750, 46, $1,293.75, $2,043.75
6. 40, $380, 2, $28.50, $408.50
7. 40, $1,680, 38, $2,394, $4074
8. 40, $950, 24, $855, $1,805
9. 40, $520, 9, $175.50, $695.50

Activity 3: Getting paid a Salary

1. 26, $1,692.31
2. 24, $1,500
3. 26, $3,288.46
4. 12, $19,166.67
5. 24, $2,598.96

6. 26, $4,583.04
7. 26, $1,884.62
8. 26, $5,257.69

Activity 4: Making the sale and getting paid a commission

1. $9,750
2. $51,000
3. $4,500
4. $6,450
5. $2,500, $67, $3,175
6. $1,666.67, $1,875, $3,541.67
7. $2,166.67, $1,925, $4,091.67
8. $2,375, $1,710, $4,085
9. $2,000, $600, $2,600
10. $2,666.67, $300, $2,966.67

Activity: More Commissions

1. $750
2. $300
3. $1,200
4. $5,370
5. July 2
6. $31.22
7. Opinion…

Activity 5: Tipping is not a city in China

1. $5.63
2. $29
3. $3.50
4. $11.78
5. $1
6. $8.63
7. $0
8. $70.25
9. $13.53
10. $6.57

Wrap up

1. Opinion
2. Opinion

3. Hourly
4. Opinion
5. Opinion
6. Piecemeal

Quiz

1. $3,525
2. $5,531.25
3. $4,750
4. $175
5. $800
6. $1,384.62
7. $16.50
8. $1,093.75
9. $13,500
10. $3,750
11. This is where you get paid for each thing you make or service you provide.
12. Overtime is work over 40 hours that pays 1.5 times regular pay.
13. A commission is a sum of money paid to a worker after a job is complete.
14. Jobs whose wages are negotiated yearly. We call this type of pay salary.
15. A set waged paid for each hour worked.
16. Money paid in addition to the bill as extra compensation.
17. Paid every two weeks, amounting to 26 yearly payments.
18. Same as overtime; pay is 1.5 regular wage for hours worked over 40.
19. Paid twice a month, amounting to 24 yearly payments.
20. A sum of money paid after a job is complete plus a negotiated yearly wage, paid at predetermined intervals (paydays).

Lesson 4 Activities Answer Key:

Paystubs:

1. $4,135.90
2. $800
3. $756.70
4. 02/14/2018
5. 40
6. $40
7. $1,465.10
8. $590.70

Paystubs, Part 2:

1. $28,707.21
2. $360.68
3. $226.83
4. $3,319,78
5. $20.35
6. 07/10-23/2017
7. $13.00/hr.
8. Bi-Weekly
9. 26
10. $27,045.98

Activity 3: Tax Status

	Name	Earnings (yearly)	Tax Bracket	Tax owed
1.	Marsha	$26,000	12%	$4107.5
2.	Greg	$97,500	24%	$17479.5
3.	Jan	$250,000	35%	$62295
4.	Peter	$42,500	22%	$5140
5.	Cindy	$125,250	24%	$24139.5
6.	Carol	$35,500	12%	$5247.5
7.	Bobby	$69,000	22%	$10970
8.	Mike	$1,000,000	37%	$334427

Quick Quiz

1. States have different tax rates, from 0% to over 13%. Higher tax rates mean less net pay.
2. Health insurance premium, IRA/401K contribution, Child support, Garnishment, Union dues, Meals, Life insurance premiums
3. False
4. Federal tax, state tax
5. 26
6. Net pay
7. Flat tax would mean same tax for everyone regardless of income. This provides equal tax burden for all. A flat tax would eliminate a lot of jobs as the IRS would not need to be as large of an institution. This would also reduce the number of jobs as tax accounting would be reduced. Companies that exist because of taxes would also be reduced. There are a lot of jobs surrounding taxes.

Bonus question:

Scott makes $1,500 every paycheck. He lives in Colorado and pays 4.55% state sales tax. His federal tax for the pay period is $106.55. He has a 401K deduction of $50 taken out of each check before taxes. He pays 6.2% Social Security tax and 1.45% Medicare tax. Unfortunately for Scott he also has a $75 child support garnishment on every check. How much does Scott take home after all taxes and deductions for this pay period?

Gross Pay	**$1,500**
401K Contribution	$50
Federal Tax	$106.55
State Tax	($1500-$50) *.0455=$65.98
SS Tax	($1500-$50) *.062=$89.90
Medicare Tax	($1500-$50) *.0145=$21.03
Child Support	$75
Net Pay	$1,500-$50-$106.55-$65.98-$89.90-$21.03-$75= **$1,091.54**

Num	Name	State	Salary/Wage	# of Pay periods	Gross Wages per pay period	Federal Tax	State Tax	SS Tax	Medicare	Total Tax	Net Pay
1	Cho	Alab	$23/hr.	26	1840	242.86	92	114.08	26.68	475.62	1364.38
2	Ginny	Cal	$36k/yr.	24	1500	171.77	120	93	21.75	406.52	1093.48
3	Fred	Alaska	$15/hr.	52	600	68.2	30	37.2	8.7	144.10	455.90
4	Neville	Cal	$1.2 mil/yr.	12	100000	34035.58	13300	711.45	2350	50397.03	49602.97
5	Luna	Alab	$65k/yr.	26	2500	388.06	125	155	36.25	704.31	1795.69
6	Draco	Ark	$21.5/hr.	52	860	108.23	50.74	53.32	12.47	224.76	638.24
7	Harry	Alaska	$7.85/hr.	52	314	33.88	0	19.47	4.55	57.9	256.10
8	Ron	Cal	$37/hr.	26	2960	489.26	275.28	183.52	42.92	990.98	1969.02
9	Hermione	AZ	$42,500/yr.	24	1770.83	214.15	59.15	109.79	25.68	408.76	1362.07
10	George	Alab	$350k/yr.	26	13461.54	3741.98	673.08	328.36	316.35	5059.77	8401.77

Lesson 5 Activities Answer Key

Part 1, Simple Interest

1. $1160
2. $5750
3. $30,000
4. $505
5. $65,000
6. $8,600
7. $2,550
8. $560
9. $2,200
10. $1,062.5

Part 2, Simple Interest

1. $8,970
2. $5,620
3. $15,000
4. $1,170
5. $3,664
6. $0
7. $2,000
8. $4.45
9. $1,728
10. $1,950

Activity 2, Compound Interest

1. $165,346.07
2. $27,810.71
3. $3,024,376.31
4. $6,583.78
5. $117,576.83
6. $1,739.95
7. $6,434.39
8. $2,225,345.85
9. $46,507.54
10. $82,673.04

Extra Credit

$20,330