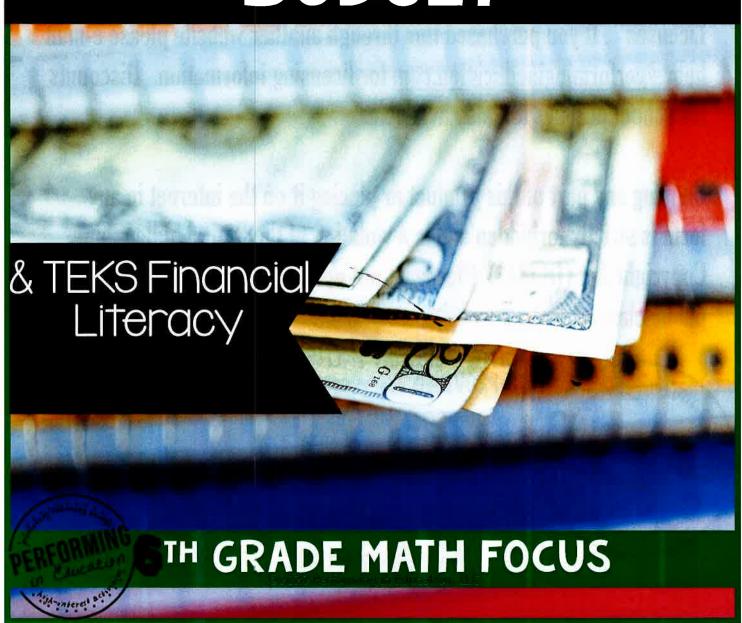
## ADD, SUBTRACT, MULTIPLY, AND DIVIDE DECIMALS

# Math PROJECT-BASED CREATE A PERSONAL BUDGET



## Vocabulary

Print & laminate these vocabulary cards for each group or for your class word wall.

budget

A budget is a plan for how you will spend your money. It includes your income and expenses for a period of time (weekly, monthly, etc.). © 2020 Performing in Education, LLC

## balanced budget

In a balanced budget, your income is equal to your expenses. You don't spend more than the income you have coming in. You spend and save equal to your income for that time period.



Before Beginning

Look through the 2<sup>nd</sup> part of this project to decide if your students will be doing the regular difficulty project (without calculating income tax) or the "challenge" part (with calculating income tax). Print out the corresponding budget spreadsheet for each student. Decide if you want them to use paper & pencil or create a spreadsheet on the computer.

### Discussion Points

- What is a balanced budget?
- What is the difference between a need and a want?
- What bills and other costs will you have to put in your budget?
- What will you prioritize in your budget?
- How might your budget change each month?
- What is a paystub?

## Connections

- Technology: Create a spreadsheet on the computer to use for the budget.
- Real-life skills: How to read a paystub: http://www.loyola.edu/department/financialservices/payroll/paystub/howtoread

## Process

Part I is an introduction to what a balanced budget is, and what a budget spreadsheet looks like. Use this time to have a lot of discussion on the topic and the math involved in creating a personal budget. Have students answer the questions on "A Balanced Budget" before holding discussions in partners, small groups, and whole group. The circle graph helps set up the project with the recommended percentages for each part of the budget. These recommended percentages are the maximum you should put in each category, except savings which more is always better!

## Recommended Time: 10 minutes+ discussion time

Gross Income (Taxes Not Included) Use with Part 2.

## Budget Spreadsheet

Expenses	Monthly Income	$\Rightarrow$
Savings (10%)		
Housing		
Utilities		
Car Payment		
Car Insurance		
Gas		
Food		
Clothing		
Entertainment		
Pets		
Health Insurance		
Other:		
Other:		
Other:		



#### Before Beginning

Choose whether you want your students to complete part 2 or part 2 challenge. Part 2 challenge includes income tax calculations, which I highly suggest you include in your project if you are following Texas: TEKS financial literacy standards or just want a good challenge for your students. You also choose to use both if you want to differentiate for different learners.

#### Discussion Points

Why do certain careers pay a higher starting salary?

What additional benefits do military personal receive that help of fset the low pay?

What education or training is needed for each career?

Does starting salary change? What ways can you make more money in your career?

- Do you get your entire annual salary? (This is a great way to address taxes, retirement, healthcare, and other things that are automatically taken out of paychecks, even if you're not doing the part of the project that includes taxes. You'll hear a lot of funny comments about what students have overheard their parents complain about!)
- What are pay periods and how do businesses pay their employees?

#### Connections

• Community/Real-life: Have community members come in and talk about their jobs, including the training/education they needed to get it, what responsibilities they have, and salary if they're comfortable talking about it.

Technology: Research career paths and pay.

- Writing: Write an essay you would send to a college (or technical school/training academy) to convince them to admit you, include any skills or qualifications you have that would entice them to admit you.
- Opinion or Argumentative Writing: Should military or teachers be paid more?

#### Process

You will have some CREAT discussions during this part of the project! Your students will probably be shocked when they see the differences in pay from one career to the next. Many will also be interested in jobs that aren't included in the table. I strongly encourage students to research the average starting salary of the career they're interested in If it's not on the list. There's a space on the career page to write in their own. Once they choose their career, have them divide their annual salary by 12 to get their monthly salary. To keep this project simple, we'll be using gross salary and not getting into any of the deductions that come out of a paycheck. If you want to, you can have students set aside 15-20% for taxes and 10% for "other" deductions such as healthcare, retirement, etc... There is room for this on the budget spreadsheet. For a more authentic experience with taxes and tax brackets, try part 2 challenge instead! Once they have their monthly salary, have them write it at the top of their budget spreadsheet. There are stars on both pages to help students match up where to put these amounts. This salary will be used for the rest of the project, so make sure the math is correct.

Recommended Time: 45-60 minutes

# Teacher Tips & Tricks Part 2-challenge

### Before Beginning

If you decide to complete part 2 challenge (20), students will use the "choose a career" page in this section. It has slightly different directions on the bottom than the "choose a career" page in part 2. Make sure you have calculators available before you begin this activity. Check the differentiation ideas below for some great ideas on modifying this part for your students.

#### Discussion Points

Why do certain careers pay a higher starting salarup

What additional benefits do military personal receive that help offset the low pay?

What education or training is needed for each career?

Does starting salary change? What ways can you make more money in your career?

• Do you get your entire annual salary? (This is a great way to address taxes, retirement, healthcare, and other things that are automatically taken out of paychecks, even if you're not doing the part of the project that includes taxes. You'll hear a lot of funny comments about what students have overheard their parents complain about!)

What are pay periods and how do businesses pay their employees?

What is a tax bracket? Why are larger amounts of money taxed at a higher rate?

How do tax brackets affect your family?

## Connections

• Community/Real-life: Have community members come in and talk about their jobs, including the training/education they needed to get it, what responsibilities they have, and salary if they're comfortable talking about it.

Technology: Research career paths and pay.

Writing: Write an essay you would send to a college (or technical school/training academy) to convince them to admit you. Include any skills or qualifications you have that would entice them to admit you.

Opinion or Argumentative Writing: Should military or teachers be paid more?

• Social Studies/Government: Research the state tax rate and what these taxes go to statewide. This could also lead to an opinion/argumentative essay on what our state should fund more (Education? Space exploration?). You can also teach how taxes are set, which can lead into the branches of the state government.

• Science: Learn about the cost of space exploration and history of governments funding space exploration.

• Find the budget for a specific space mission and discuss what types of things they think funding went to. This can lead you into reading about the different space shuttles or rovers and technology that goes into these missions.

#### Differentiation

Use gifted or advanced students as "accountants". Set them up with stations around the room where other students can bring their work to be checked. Train the "accountants" to circle the problem areas, but not complete the work for the students. If a student has trouble finding the error, they can join you in small group for some extra help. Allow all students to use calculators to check their work for accuracy, even the advanced ones. For some students that are really struggling, you may want them to use their calculator the entire time. They will still learn a lot about multiplying by percentages/decimals by noticing patterns in their results.



## Choose a Career

Career	Average Starting Annual Salary
Police Officer	\$30,21
Teacher	\$32,500
Military	\$16,029 + housing and food are covered
Border Patrol	\$36,658
Veterinarian	\$48,371
FBI Agent	\$34,024
Fire Fighter	\$42,259
Nurse	\$41,190
Doctor	\$76,305

Circle your annual salary. You will use it on the next page when you calculate income tax.



## Personal Income Tax My Work

Gross Annual (yearly) Income:

Tax Rate	Income	Total Taxes
10% (.10)		
15% (.15)		
25% (.25)		
28% (.28)		
33% (.33)		
35% (.35)		
Total	Annual Taxes (add all taxes)	
Anr	nual Net Income After Taxes (annual income – annual taxes)	

How do you find your monthly net income? Calculate it below.		
☆		
Use your net in	come for the rest of the budget pieces.	



## Before Beginning

Find several videos on Youtube about savings.

Begin with a quick pre-assessment to see who will need help multiplying by 0.10 during this step.

#### Discussion Points

Why do you need to save money?

What can you use the money in your savings for?

• Where do you put money when you save it? What are the benefits of having a savings account at a bank?

### Differentiation

Use gifted or advanced students as "accountants". Set them up with stations around the room where other students can bring their work to be checked. Train the "accountants" to circle the problem areas, but not complete the work for the students. If a student has trouble finding the error, they can join you in small group for some extra help. Allow all students to use calculators to check their work for accuracy, even the advanced ones. For some students that are really struggling, you may want them to use their calculator the entire time.

## Connections

• ELA & Geography: Have students create a savings goal for a family vacation. Have them read books about different travel locations, then write a creative narrative essay telling a made-up story from this future vacation. Another option is to have students write an essay explaining how they will reach their savings goal. They can also write a research essay & create a travel brochure about the place they would like to visit once they've met their savings goal.

## <u>Process</u>

This part is fairly quick since there's only a few calculations involved, but you can use it to make so many connections to other subject areas. Don't forget to have students add the 10% to their budget spreadsheet! If they are out of money before they choose all of their necessities, they can lower the savings amount. If this occurs, have them think about their home and car choices first!

Recommended Time: 15-30 minutes



Before Beginning

Extra pages with blanks where the monthly rent/mortgage goes are provided in case you want to provide your own amounts. Cost of living is so different in every town! See the technology/research connection for more info on having students find this information themselves.

## Discussion Points

- What is a fixed expense?
- Why is a maximum 35% of your income recommended for your house payment?
- What are some reasons to choose a smaller home? What about a larger home?
- What are the special circumstances for military housing?

## Connections

- Technology & Research: Have students research the cost to rent different apartments or houses in your area. Use the "choose a home" pages with the blank payment spaces. You can also bring in a bunch of those free houses for sale/rent booklets that you find by the newspaper stands. It's a lot easier if you stick with rentals, but you can also have students try a mortgage calculator like this one: <a href="http://www.zillow.com/mortgage-calculator/">http://www.zillow.com/mortgage-calculator/</a>
- Social Studies: Take a look at the types of homes people have lived in during different time periods. Read about historical figures and look at the houses they lived in (I like to show the Google Maps street view of presidential homes like The Hermitage).

## Process

Students will calculate their maximum budget by multiplying their monthly income by 35% (0.35). They then have a choice of homes, but they need to keep the monthly payment + utilities under their max budget. If they want to go over the max budget, they will have to make up for it in other categories and be able to justify the choice. They will then add the payment + utilities in their budget spreadsheet and subtract to see how much they have left over.

Don't forget that military can choose to live in the barracks and place \$0 in their spreadsheet!

## Recommended Time: 30-45 minutes + optional research time

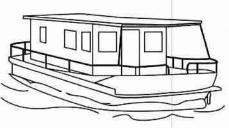


## Choose a Home

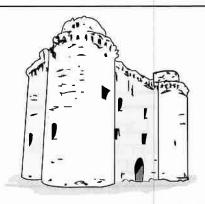


Giant House Average Utilities: \$500/month

Glant House 5 bedrooms 4 bathrooms \$2,500/month



House Boat I bedrooms I bathrooms \$1.050/month House Boat Average Utilities: \$200/month



Small Castle Average Utilities: \$3,400/month

Small Castle

10 bedrooms 7 bathrooms \$20.000/month



## Choose a Home

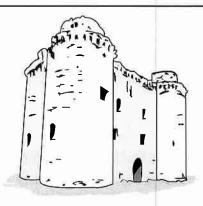


Giant House Average Utilities: \$500/month

Glant House
5 bedrooms
4 bathrooms
5\_\_\_\_/month



House Boat Average Utilities: \$200/month



Small Castle Average Utilities: \$3,400/month

Small Castle
10 bedrooms
7 bathrooms
\$\_\_\_\_/month



## Choose a Vehicle

Your monthly car payment + insurance + gas should not be more than 15% of your monthly income. Calculate your maximum budget for a car, and choose accordingly.

accordingly. \_\_\_\_\_/month car budget Monthly Income \$\_\_\_ **Sports Car** \$381/month car payment 111111 \$150/month insurance \$180/month gas **Pickup Truck** \$300/month car payment Other \$100/month insurance \$200/month gas /month car payment /month insurance Scooter \$152/month car /month gas payment \$65/month insurance \$50/month gas **Small Car** \$224/month car payment \$75/month insurance

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\$120/month gas



## Choose a Vehicle

Your monthly car payment + insurance + gas should not be more than 15% of your monthly income. Calculate your maximum budget for a car, and choose accordingly.

☆Monthly Income \$	×0.15 =	/month car budget
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		

Vehicle Name:	
\$/month car payment	
\$/month insurance	
\$/month gas	

Vehicle	Vehicle Name:	
\$	/month car payment	
\$	/month insurance	
\$	/month gas	

Vehicle Name:	
\$/month car payment	
\$/month insurance	
\$/month gas	



## Other Expenses

Your personal budget should now look something like the one below. Make sure you've calculated the money you have remaining in your budget by subtracting it from your monthly income. After our budget is filled in with our fixed bills, we can start estimating how much we can spend in categories that are <u>variable</u> (may change month to month depending on the decisions you make).

## Example Budget

Category	Amount Budgeted	Monthly Budget Balance
Monthly Income For Librarian \$34,510/12mths		\$2,875.83
Savings (10%)	\$287.58	\$2,588.25
Housing	\$733	\$1,855.25
Utilities	\$120	\$1,735.25
Car Payment	\$172	\$ 1,563.25
Car Insurance	\$65	\$1,498.25
Gas	\$70	\$1,428.25

# Product + Extension

### Process

Have students check their spreadsheet again for accuracy. This is where students should make any revisions to their spreadsheet. If it's hard to read, print out a new budget spreadsheet and have them fill it out again so that they have a clean copy. If you're using a spreadsheet on the computer, this is the time to check that the calculations are accurate and that it's easy to read before printing.

• Critique & final revision: Trequire a written justification paper to accompany their spreadsheet. During this step, students work in small groups or partnerships to review both these items & give feedback. The students then go

back and make final revisions.

• Presentation: They can create video presentations, artwork, posters, and so much more to present their work. Because these presentations are very detailed, I usually give them two full class periods to finish them.

• My favorite project was one where a student built a 3D model of their house with his car outside and a person inside dressed up as a lawyer (his chosen career). He walked us through each part of the house.

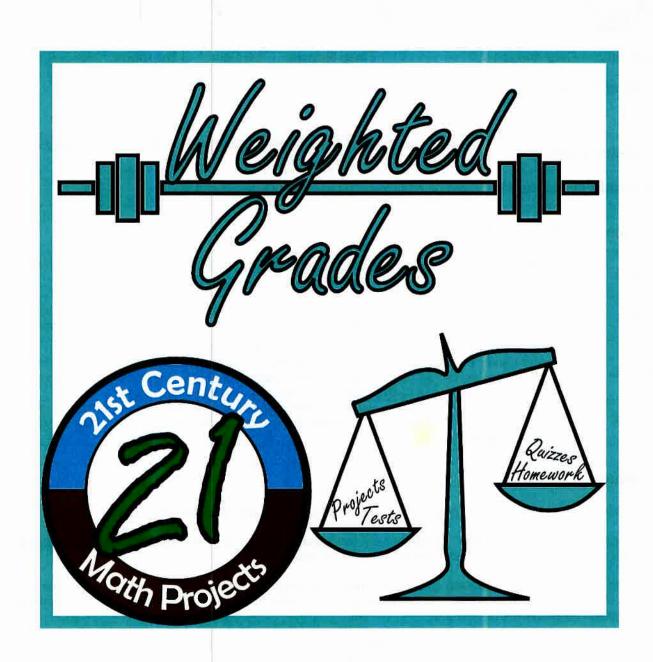
explaining how much he budgeted for everything. He even had a little fridge and pantrul

• For the actual presentations, you can have students present one at a time while the remaining students grade & give feedback on paper. We have large class sizes, so I prefer to have them present to smaller groups of 6-8. This makes it more intimate and allows for students to ask questions. It can be tedious to sit through 30+ presentations on similar topics, even if they use different types of media to present their ideas.

### Extension/Enrichment

- Create a circle graph that shows each piece of their budget.
- Compare & contrast their budget with someone who chose the same career.
- Compare & contrast their budget with someone who chose a different career.

Recommended Time: 120-180 minutes





## Weighted Grades

Name Date	W
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All points are not created equal. On the first day of school, a teacher will often hand out a syllatus. Little did you know this was the most important document of your life. Among other things, the syllabus spells out exactly how you will earn your grade. You were probably not surprised to learn that one test was not the same as one homework assignment, but you may have been shocked to learn that one homework point is not the same as a test point.

Students are surprised to see grades dramatically change. Have you ever seen a 95% drop to a 60%? Often this has to do with how the categories of the grades are weighted. Test points generally are more valuable than participation points, but you need to see your teacher's grade standards before you know for sure. Maybe 90% of the class grade will be based on participation and the other 10% will be based on projects. Help these students navigate their grade systems to figure out what their actual grade is.

#### Meghan



Goal: Earn a 80% to raise her GPA

Grade Weight		
Assignments	60%	
Participation	40%	

Current Grades by	Category
Assignments	78%
Participation	85%

Determine the current grade based on the weights.

#### Isaiah



Goal: Earn a 90% to make High Honors

Grade VVeight	
Tests	35%
Quizzes	25%
Assignments	20%
Participation	20%

Current Grades by Category	
Tests	75%
Quizzes	85%
Assignments	90%
Participation	100%

Determine the current grade based on the weights.

#### Maribel



Goal: Earn a 65% to pass the class

Grade Weight	
Projects	40%
Tests	30%
Discussions	20%
Service	10%

Current Grades by	Category
Projects	76%
Tests	68%
Discussions	45%
Service	50%

Determine the current grade based on the weights.

## End of the Grading Period

	11
X	//
/ )	Homework
projects Tests	
	107

Name

Date

It's the last day of the quarter and you have one last gasp to turn in as many points as possible. Assignments are due, tests are scheduled, make-up work is final. Cell phone privileges, car allowances and Friday night are all riding on this day because once the grades have settled... dun dun... the report card comes out. Help these students play a game of hypotheticals to determine what they need to do to meet their goal.

#### Jamel



**Goal:** Earn a 95% in art class

Grade Wei	ght
Assignments	60%
Project	40%

Current Grades by	Category
Assignments	92%
Projects	???%

Jamel has to complete his final project by the last day of the grading period. What grade must he receive to meet his goal?

### Safiya



**Goal**: Earn a 90% in health

Grade Weight	
Tests	40%
Quizzes	30%
Assignments	20%
Participation	10%

Current Grades by Category	
Tests	???%
Quizzes	85%
Assignments	98%
Participation	100%

Safiya has a test on the last day of the grad ng period. What grade must she receive to meet her goal?

#### Rishi



**Goal:** Earn a 70% in English

Grade Wei	ght
Assessments	30%
Participation	20%
Discussions	20%
Classwork	30%

Current Grades by Category	
Assessments	77%
Participation	89%
Discussions	55%
Classwork	???%

Rishi has to turn in make-up classwork in order to improve his grade. If he currently has 114 out of the 240 points for classwork, how many more classwork points must he earn to meet his goal?

## Making your Grade

$\Lambda$	Quirno
/siecis	Homework
ProFrests	
	(0)

Name	 Date

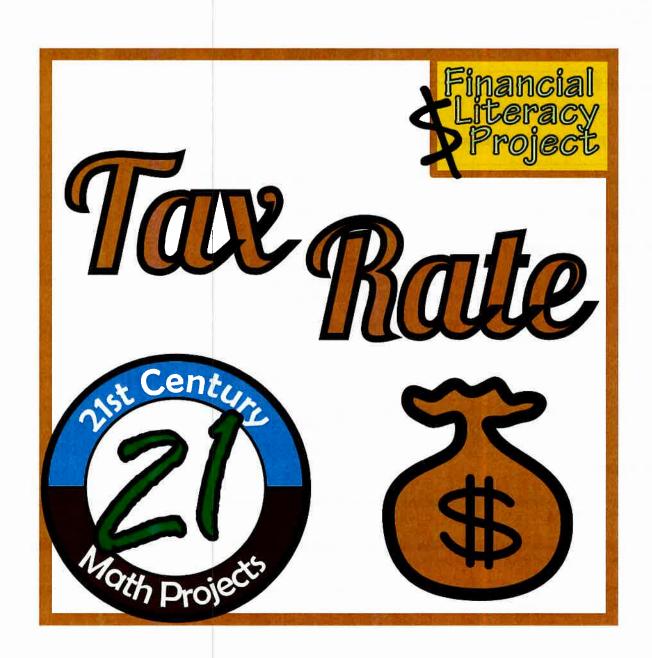
On the first day of school, your teacher walks through the door and gives you the shock of your life. The teacher gives you the power to determine the weights on your grade system. Holy moly! You must have categories for Projects, Tests, Quizzes, Assignments and Participation and the weights of course have to add up to 100%. Use these grade weights to calculate the final grades for a few random students.

Projects	Tests	Quizzes	Assignments	Participation

	Projects	Tests	Quizzes	Assignments	Participation	Grade
Curie	95%	98%	95%	89%	75%	
Einstein	92%	73%	76%	56%	68%	
Franklin	85%	65%	81%	75%	97%	
Kardashian	56%	48%	62%	58%	83%	
Newton	71%	95%	87%	73%	85%	

Why do you believe that your grade system is the most fair? Write a letter to your teacher and propose the grade system for the next school year.

1



## Flat Tax

Name	Date	

It's hard to make a purchase without being required to pay a tax. A *flat tax* is a tax that applies the same tax rate to every taxpayer. Most commonly in the United States, a flat tax is applied to sales tax and property tax. Even still, from state to state, not everyone is required to pay these taxes. Some argue that income tax should become a flat tax rate.

In this assignment, you will analyze situations involving tax rates to determine how much tax will be owed.



Task: Estimate his sales tax.

Donnie is planning to purchase a new tablet PC for \$750. The tax rate n his city is 5.75%. How much will the tablet cost him?



**Jessica**Task: Understand her property tax.

Jessica is exploring purchasing a condo that has been appraised at \$121,500. The property tax rate in her city is 1.5% per year. How much money will she need to pay in property tax each year?



Task: Calculate her sales tax

Batulo is preparing to purchase a new Honda Accord for \$24,500. Additionally, she will need to pay 4.75% in tax. What will be the total cost of the car?



## The Tax Code

Name Date	
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Income tax in the United States is applied at a progressive tax rate. There s a misconception that when people earn a certain amount of money it is all taxed at the higher rate. In fact, only the amount of money that extends into the

higher bracket is taxed at the higher rate. In the income tax table below, determine the amount of tax owed within each bracket to make this a little easier to understand.

## Individual Taxpayers

If Taxable Income is Between	Tax Rate	The Tax Due is:
0 - \$9,525	10%	
\$9,526 - \$38,700	12%	+ 12% of the amount over \$9,525
\$38,701 - \$82,500	22%	+ 22% of the amount over \$38,700
\$82,501 - \$157,500	24%	+ 24% of the amount over \$82,500
\$157,501 - \$200,000	32%	+ 32% of the amount over \$157,500
\$200,001 - \$500,000	35%	+ 35% of the amount over \$200,000
\$500,001 +	37%	+ 37% of the amount over \$500,000

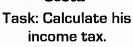
## Married Filing Jointly Taxpayers

If Taxable Income is Between	Tax Rate	The Tax Due is:
0 - \$19,050	10%	
\$19,051 - \$77,400	12%	+ 12% of the amount over \$19,050
\$77,401 - \$165,000	22%	+ 22% of the amount over \$77,400
\$165,001 - \$315,000	24%	+ 24% of the amount over \$165,000
\$315,001 - \$400,000	32%	+ 32% of the amount over \$315,000
\$400,001 - \$600,000	35%	+ 35% of the amount over \$400,000
\$600,001 +	37%	+ 37% of the amount over \$600,000

Warren Buffett, a wealthy American billionaire, made news when he announced that the tax rate he pays is less than his secretary. Due to tax loopholes, he is able to legally reduce his overall tax bill and thus decrease his overall tax rate. To determine an individual's "true tax rate," divide the amount they pay by their earnings.



Cesar runs his own business and his adjusted gross income was \$102,000 last year. He has already paid \$16,000 this year and is expecting to owe more. He will be filing as an individual. How much will he owe? What is this "true tax rate"?





and her husband's income tax.

Tripiti and her husband are surgeons and they have an adjusted gross income of \$454,000. They will be filing jointly and have already paid \$120,000 in taxes. Will they owe more money or receive a refund? What is their "true tax" rate?



Task: Calculate his and his wife's income tax.

Matt and his wife are filing their taxes jointly this year. They have an adjusted gross income of \$49,500. They have already paid \$6,600 in taxes this year. Will they owe more or will they get a refund? What is their true tax rate?



## Tax Reformer



When you have your tax bracket, you will write a letter to your Congressmen presenting your proposal, providing a rationale and including at least two different example calculations for families that you will create.

In the table provided, structure your fax Brackets for a		eket proposal.
If Taxable Income is Between	Tax Rate	The Tax Due is:
Create two different hypothetical in	Hypothet	ical People y your tax bracket to determine how much they owe.
Income:	SALES CONTRACTOR OF THE PROPERTY OF THE PROPER	Income: