> ADD. SUBTRACT. MULTIPLY. AND DIVIDE DCIMASS Math PROJECT-BASED CREATE A PERSONAL BUDGET

## \& TEKS Financial Literacy

## Middle GRADE MATH FOCUS

# Vocabulary <br> 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.).

## balanced budget

 in a balanced budget, your income is equal to your expenses. You don' $\dagger$ spend more than the income you have coming in. You spend and save equal to your income for that time period.
## Before Begnnnng

Look through the 2nd part of this project to decide If your students will be dong the regular difficulty project (without calculating income tax) or the "chalenge" part (with calculating income tax). Print out the corresponding budgoet
spreadsheet for each student. Decice 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 paystubp?


## Connections

- Technology: Create a spreadsheet on the computer to use for the budget.
- Real IIfe skills: How to read a paystub:
http:/l/www.oyolaeduldepartment/financiaseervices/payroll/paystub/howtoread


## Process

Dart I is an introduction to what a balanced budgeet is, and what a budget spreadsheet looks Ike. 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 questons on "A Balanced Budget" before hoding discussions in partners. small grouns, and whole group. The crcle 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!

## Recoommended Iime: I minutes discusson time

## Grosshcome <br> (Treses hot holuced) <br> Use with Datt? <br> Bunget soreadsheet


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## Before Begnning

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 incude in your project if you are following Texas' TEKS financial Iteracy standards or just want a good challenge for your students. You aso choose to use both if you want to differentiate for different learners.

## Discussion Ponits

- Whydo certan careers pay a higher starting salary?
- What additiona benefits do millitary personal recelve that help offset the low pay?:
- What education or tramng 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 salay!? :This is agreat way to address taxes, retirement, healthcare. and other things that are automaticaly taken out of paychecks, even if you're not doing the part of the project that includes taxes. Youll hear a lot of funny comments about what students have overheard their parents complain aboutl!)
- What are pay periods and how do businesses pay their employees?


## Connections

- Cormmunity/Read-life: Have community members come in and talk about their jobs, including the trainingledication they needed to get it. what responsibilites they have, and salary If they're comfortable talking about it.
- Technology: Research career paths and pay.
- Writhn: Write an essay you would send to a coliece (or technical schoolitraining academy) to convince them to admit you incude any skills or qualifications you have that would entice thern to admit you.
- Opirion or Argumentative Writing: Should military or teachers be paid more?


## Process

You will have some GREEI dsccusslons during thl part of the project! Your students will probably be shocked when they see the differencees in pay from one career to the next. Tlany will aso be interested in jobs that aren't incuded in the table. I strongly encourage studerts to research the average starting salary of the career theyre interested in if t'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 22 to get their monthy salary. To keep this project simple weill be using gross salary and not geting 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 lo\% for "other" deductions such as heathcare, retrement. etc. There is room for thls on the budget spreadsheet. For a more authentic experience with taxes and tax brackets, try part 2 challengeinstead Once they have their monthly salary. have them write it at the top of thelr bucget spreadsheet. There are stars on both pages to help students match up where to put these amounts. Thls salary will be used for the rest of the project. so make sure the math is correct.

# Recoommended IIme: $45-60$ minutes 

# Part 2-challenge 

## Before Beanning

If you decice to complete part 2 challenge (2C). students will use the "choose a career" page in this section. It has sightily different directions on the bottom than the "choose a career" page in part 2. Inake sure you have calculators avalade before you begin thls activty. Check the differentiation ideas below for some great ideas on modifyung this part for your students.

## Discussion Points

- Why do certan careers pay a higher starting salary?
- What additiona benefits co military personal receive that help offset the low pay?
- What education or traling is needed for each career?
- Does starting sadary change? What ways can you make more money in your career?
- Do you get your entire annual salary: (This is a great way to adcess taxes. retirement, heath heare, and other things that are automatcally taken out of paychecks, even If youre not daing the part of the project that inclides taxes. Youll 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 fanily?


## Connections

- Community/Read-Ife: Have community members come in and talk about their jobs, including the traningleducation they needed to get it: what responsibilities they have, and salary if theyrre comfortable taking about it.
- Technoloyy: Research career paths and pay.
- Writing: Write an essady you would send to a college (or technlcal school/traning academy) to convince them to acmit youl include any skills or qualifications you have that would entice them to admit you.
- Oinion or Argumentative Writing: Should milltary or teachers be paid more?
- Social Studies/Government: Research the state tax rate and what these taxes go to statewide. Thls could aso lead to an opprion/2rgumentative essay on what our state should fund more (Education? Space exploratlon?). You can aso 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 thinges they think funding went to. This can lead you into reading about the different space shuttles or rovers and technobogy that goes into these missions.


## DIfferentiation

Use gifted or advanced stucents as "ccoountants". Set them up with stations around the room where other students can bring their work to be checked. Iran the "accountants" to circle the problem aress, but not complete the work for the students. If a student has trouble finding the error, they can join you in smal group for some extrahelp. Alow all students to use calculators to check their work for accuracy. even the advanced ones. For some students that are really strugging, you may want them to use their calcuator the entire time, They will stivl learn a lot about multipling by percentrages/decimas by noticing patterns in their results.


## Choose a Career

| Career | Average Starting Annual <br> Salary |
| :---: | :---: |
| Police Officer | $\$ 30,2 \\|$ |
| Teacher | $\$ 32,500$ <br> Military <br> +housing and food are <br> covered |
| Border Patrol | $\$ 36,658$ |
| Veterinarian | $\$ 48,371$ |
| FBl Agent | $\$ 34,024$ |
| Fire Fighter | $\$ 42,259$ |
| Nurse | $\$ 41,190$ |
| Doctor |  |

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

Part2C


## Personal Income Tax <br> My Work

Gross Annual (yearly) Income:

| Tax Rate | Income | Total Taxes |
| :--- | :--- | :--- |
| $10 \%(.10)$ |  |  |
| $15 \%(.15)$ |  |  |
| $25 \%(.25)$ |  |  |
| $28 \%(.28)$ |  |  |
| $33 \%(.33)$ |  |  |
| $35 \%(.35)$ |  |  |
| Annual Net Income After Taxes |  |  |
| (annual inco me - annual taxes) |  |  |$]$

How do you find your monthly net income? Calculate it below.
is
Use your net income for the rest of the budget pieces.
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## Part 3

## Before Eequmng

Find severea viceos on Yoatube about Sywngs.
Began with aquick pre-.2sesssment to see who will reed hep mult plyng byy 0.0 diring thls step.

## Dsculsson Donits

- Why do youneed to syve maney?
- What can you use the moneyn ingor saming for?



## Dfferentition



 check their work for accurray. even the avvanced ores. For some students that are ceally strugging. you may want them to sose ther caluador the enirie tirie.

## Comections






## Poceess



 frrst!

## Recommended Iime: $15-30$ minutes



## Before Beaming

Extra pages with blanks where the monthly rent/martgage goes are provided in case you want to proud your own amounts. Cost of living is so different in every towns 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 ass 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 Ike this one: http:/IWWw.zillow.com/mortgage-cacculator/
- 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 (l Ike 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.
Cont 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




## Choose a Home




## 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.


Other
\$__ month car
payment
\$ $\qquad$ /month insurance

Scooter
\$152/month car payment
$\$ 65 /$ month insurance $\$ 50 /$ month gas
$\$$ $\qquad$ /month gas


## Small Car

\$224/month car
payment
$\$ 75 /$ month insurance
$\$ 120 /$ month gas
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## 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.

NMonthly Income $\$$ $\qquad$ $\times 0.15=$ $\qquad$ /month car budget



## 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 variable (may change month to month depending on the decisions you make).

## Example budget

| Category | Amount Budgeted | Monthly Budget Balance |
| :--- | :---: | :---: |
| Monthly income for <br> Librarian <br> $\$ 34,5 / 10 / 2 \mathrm{mths}$ | $\$ 287.58$ | $\$ 2,875.83$ |
| Savings (10\%) | $\$ 733$ | $\$ 2,588.25$ |
| Housing | $\$ 120$ | $\$ 1,855.25$ |
| Utilities | $\$ 172$ | $\$ 1,735.25$ |
| Car Payment | $\$ 65$ | $\$ 1,563.25$ |
| Car Insurance | $\$ 70$ | $\$ 1,498.25$ |
| Gas |  | $\$ 1,428.25$ |

## 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 youre using a spreadsheet on the computer, this is the time to check that the calcuations are accurate and that it's easy to read before printing.
- Crittcue \& final revision: I require a written justification paper to accompany their spreadsheet. Uuring this step. students work in small grouns or partnershins to review both these tems \& 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 Becalse these presentations are very detalied. I usulally give them two full class periods to finish them.
- Mu favorite project was one where a student built a 30 model of therr house with his car outside and a person inside dressed up 25 a lawler (hhis chosen career). He walked us through each part of the house. explaning how much he budgeted for everything. He even had a little fridge and pantry!
- For the actual presentations. you can have students present one at a time while the remaring students grade \& glve feectback 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 deass.


## Extenson/[Enclement

- 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 IIme: 120-180 minutes


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Name

## Weighted Grades

Date
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, zhe 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 shockec 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 tכ 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 standa`ds before you know for sure. Maybe 90\% of the class grade will be based on participation and the oter $10 \%$ will be based on projects. Help these students navigate their grade systems to figure out wרat their actual grade is.

Meghan
Determine the current grade based on the weights.


| Grade Weight |  |
| :---: | :---: |
| Assignments | $60 \%$ |
| Participation | $40 \%$ |


| Current Grades by Category |  |
| :---: | :---: |
| Assignments | $78 \%$ |
| Participation | $85 \%$ |

Goal: Earn a 80\% to raise her GPA


Goal: Earn a 90\% to make High Honors

| Grade Weight |  |
| :---: | :---: |
| 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.


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.
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## End of the <br> Grading <br> Period



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 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.


## Making your Grade

Name $\qquad$ Date $\qquad$


On the first day of school, your teacher walks through the door and jives 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 calcclate the final grades for a ew random students.

| Projects | Tests | Quizes | Assigmments | 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.


## Flat Tax

Name $\qquad$ 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 wil be owed.

| 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? |

## The Tax Code

Name
Date
Income tax in the United States is applied at a progressive tax rate. There sa 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\% | 4 |
| \$500,001 + | 37\% | y |

## Married Filing Jointly Taxpayers

| If Taxable Income is Between | Tax Rate | The Tax Due is: |
| :---: | :---: | :---: |
| 0-\$19,050 | 10\% |  |
| \$19,051-\$77,400 | 12\% | 4 |
| \$77,401-\$165,000 | 22\% | 4 + + 22\% of the amount over \$77,400 |
| \$165,001-\$315,000 | 24\% | $\underline{+}+24 \%$ of the amount over \$165,000 |
| \$315,001-\$400,000 | 32\% | A _ $+32 \%$ of the amount over \$315,000 |
| \$400,001-\$600,000 | 35\% | $\underline{+}+35 \%$ 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 nore.
He will be filing as an individual. How much will he owe? What is this "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 famlies that you will create.

In the table provided, structure your new tax bracket proposal.
Tax Brackets for:

| If Taxable Income is Between | Tax <br> Rate | The Tax Due is: |
| :--- | :--- | :--- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Hypothetical People
Create two different hypothetical incomes and apply your tax bracket to determine how much they ove.

| Income: |  | Income: |
| :--- | :--- | :--- |
|  |  |  |
|  |  |  |
|  |  |  |

