

# National 5 Applications of Mathematics

## Project: Budgeting

This project is designed to help you develop the skills required to budget as an adult as you begin your working life. The budget will include income from employment and spending on multiple living costs. It is beneficial to have already worked through **chapters 14-18** of the Zeta Maths National 5 Applications of Mathematics textbook before undertaking this project. The project may take two to three hours to complete.

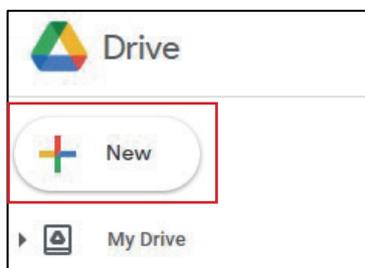
For this project, you will use a spreadsheet (Google Sheets or Microsoft Excel) to create a monthly budgeting plan.

Instructions given below will be based on Google Sheets.

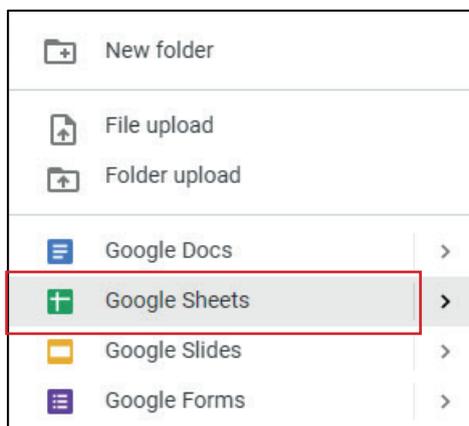
### Task 1: Create a budgeting spreadsheet

Before you begin listing and researching costs, you should create a budgeting spreadsheet.

- Open your Google Drive and click on the '+ New' icon at the left-hand side.



- Scroll down and select 'Google Sheets' to open a new Google Sheets file.



- Click the box that reads 'Untitled spreadsheet', type 'Monthly Budgeting Project' and press **ENTER** on your keyboard. This will automatically rename the file in your drive. (Every time you type something into a cell, you should press the **ENTER** key on your keyboard.)



- Click on cell B1 and type in the heading 'Income'.



### Task 3: Choose your career

This project is designed for you to begin to consider how much money you may earn from a chosen occupation and what you will be able afford in terms of accomodation, transport and other living costs.

(a) Pick a career that you would like to do when you leave school. This may be a job that you enter straight from school or after studying at college or university. You may be unsure what it is you want to do. Your choice is only for this budgeting project so you can choose any career. To get the most out of the project, it is worth selecting a career taking the following into account:

- Think of the skills that you currently have and what you enjoy doing.
- Consider the qualifications that you will need.

If you are unsure what career to pick, why not try the UCAS career quiz in the link below for some ideas:

<https://www.ucas.com/explore/career-quiz>

Write down your career on a piece of paper or in your jotter, or open a Google Doc or Word document and type in your career choice.

(b) Now that you have chosen a career, the next thing for you to do is to research the annual and monthly salary. Research how much you will earn in your chosen career. You can do this using a search engine, or by going to the website in the link below:

<https://www.payscale.com/research/UK/Job>

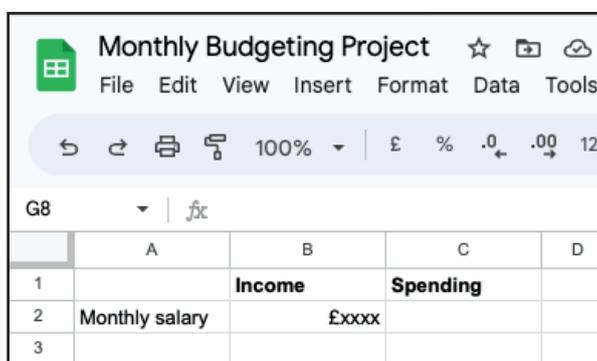
We want to put together a budget for the early years of your career. As you research your salary, select a salary at the lower end of the range, as this is more likely what you will receive at the beginning of your career.

Write down the annual salary beside your career choice.

### Task 3: Calculate your deductions

Now that you know how much you will earn in your salary, you can calculate your **net** or **take home pay**.

- (a) To do this, you need to calculate your National Insurance contributions and income tax (see **sections 15.1-2** of the textbook).
- (b) Write down your annual deductions beside your career choice and salary.
- (c) Calculate your monthly net pay (see **sections 16.1** of the textbook).
- (d) Input your monthly net pay into the income section of your spreadsheet.



Monthly Budgeting Project				
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	A	B	C	D
1		Income	Spending	
2	Monthly salary	£xxxx		
3				

You will notice that as you add to your income and spending, the totals in column F will begin to change. The value in cell F3 is the balance that remains in your monthly budget. Keep a close eye on this value as you add spending and make sure that your choices do not lead to an overspend in your budget. This would happen when the value falls below zero and becomes negative.

#### Task 4: Calculate your essential spending

Now that you have worked out your monthly spending, we need to consider your expenses. This will include a house or flat, council tax, transport, monthly bills and essential spending.

**(a)** Take a few minutes to write down all of the essential spending that you may have.

The first and most expensive part of our monthly spending will most likely be our accommodation. Accommodation costs vary significantly depending on what type of building you want and whether you want to buy or rent. Most school leavers will not be able to afford to buy a property right away as a mortgage often requires a very large deposit, so for this project we will consider renting.

From the options below, choose which of these rental properties would be the most suitable. It is important to consider that the council tax bands are A to H, with A being the cheapest and H the most expensive. Utility bills will cost more for larger properties.

- (i)** Shared occupancy flat with three tenants in total (council tax band D), monthly rent £350 each.
- (ii)** Studio flat (council tax band B), monthly rent £450.
- (iii)** One bedroom flat (council tax band B) monthly rent £650.
- (iv)** Two bedroom flat (council tax band C) monthly rent £950.
- (v)** Two bedroom semi-detached house (council tax band D) monthly rent £1100.
- (vi)** Three bedroom semi-detached house (council tax band E) monthly rent £1400.

Add this cost to the spending column of your spreadsheet.

**(b)** Now you will need to research your monthly council tax costs.

- Use a search engine to find the annual council tax costs for the area that you live.
- Divide the annual cost by 12 to add to the spending column of your spreadsheet (council tax is usually paid in 10 instalments, but for this project we will consider how much it will cost each month).

**(c)** Now you will need to research your monthly utilities.

- Use a search engine to research the annual utility costs for the size of house or flat that you have chosen.
- Divide the annual cost by 12 to add to the spending column of your spreadsheet.

**(d)** Now you will need to consider your transport. You may want a car, but this will add many additional costs to your budget, including the cost of the car, car insurance, fuel and servicing costs. This may be too expensive for your budget and a bus pass may be a more affordable option.

- (i)** Bicycle and walking - no cost.
- (ii)** Electric bicycle - £30 per month on payment plan.
- (iii)** Bus pass - £80 per month.
- (iv)** New small car including insurance, fuel and servicing - £600 per month.
- (v)** Used small car including insurance, fuel and servicing - £450 per month.
- (vi)** New medium sized car including insurance, fuel and servicing - £750 per month.
- (vii)** Used medium sized car including insurance, fuel and servicing - £500 per month.

Select one of the transport options and add it to your spending column.

### Task 5: Calculate additional spending

We have looked at some of the essential spending. We will now consider additional spending. This will include, but is not limited to, the following:

- food
- mobile phone
- broadband connection
- TV package
- TV license
- house insurance
- clothing budget

Use the internet to research the monthly cost of each of the items in the list above and add it to your spending column. If your remaining balance is low, consider which of these items you will be prepared to live without.

### Task 6: Add savings

It is always sensible to keep some money from your salary in case of emergencies, or to save for the future, or maybe for a holiday or special occasion.

- Look at your remaining balance and decide how much of this is going to go into your savings.
- Add the savings to your spending column.

You have now completed a monthly budget for your chosen career, accommodation and transport preferences. The remaining balance is the money you have left to spend on things that you would like. If this remaining balance is not as high as you would like it to be, you will need to make difference choices on your income and spending. You can change your career choice for one with a higher salary, or change your accommodation costs to a cheaper option, or you can decide to remove some of your additional spending on non-essential items, such as a TV package.

### Task 7: Additional task

- (a) As an extra task, research the school qualifications that you will require to enter the career that you have chosen.
- (a) Present your budget to your teacher and/or your class. Your presentation should include the choices you have made, how much you will earn, your total spending and your remaining balance. This should take no more than five minutes. You can present your information using PowerPoint or Google Slides.