

Deciding which car and car loan you can you afford

In this simulation activity, students calculate monthly installment loan payments and total costs for three different cars to apply a common strategy for purchasing big-ticket items.

Learning goals

Big idea

Installment loans help people purchase big-ticket items by allowing them to make payments over an extended period of time.

Essential questions

- How do installment loans help consumers purchase big-ticket items?
- How does an interest rate affect my monthly payment?

Objectives



- Understand how an item's purchase price and a loan's annual percentage rate (APR) and length affect monthly payment amounts
- Calculate and compare the monthly costs and total amount paid for three cars that would be purchased using an installment loan

NOTE

Please remember to consider your students' accommodations and special needs to ensure that all students are able to participate in a meaningful way.

KEY INFORMATION

Building block:

-  Executive function
-  Financial knowledge and decision-making skills

Grade level: High school (9-12)

Age range: 13-19

Topic: Borrowing (Getting loans, Managing credit)

School subject: CTE (Career and technical education), Math

Teaching strategy: Project-based learning, Simulation

Bloom's Taxonomy level: Apply, Analyze

Activity duration: 75-90 minutes

National Standards for Personal Financial Education, 2021
Managing credit: 8-3, 12-2, 12-6

These standards are cumulative, and topics are not repeated in each grade level. This activity may include information students need to understand before exploring this topic in more detail.

What students will do

- Calculate the monthly payments on an installment loan using varying principal amounts, interest rates, and lengths of time.
- Compare cars and car loan options and make a decision given the information provided.
- Reflect on ways to develop responsible loan practices.

Preparing for this activity

- While it's not necessary, completing the "[Calculating loan payments](#)" activity first may make this one more meaningful.
- Print copies of all student materials for each student, or prepare for students to access them electronically.
- Make sure students have access to calculators.

What you'll need

THIS TEACHER GUIDE

- [Deciding which car and car loan you can afford \(guide\)](#)
[cfpb_building_block_activities_deciding-which-car-loan-afford_guide.pdf](#)

STUDENT MATERIALS

- [Deciding which car and car loan you can afford \(worksheet\)](#)
[cfpb_building_block_activities_deciding-which-car-loan-afford_worksheet.pdf](#)
- Calculators

Exploring key financial concepts

Most people don't make enough money or have enough in savings to purchase a big-ticket item (like a house or car) with cash. Instead, people often take out installment loans. These loans allow them to make payments, usually each month, until the item is paid off.

The amount due each month depends on several factors, including the cost of the item, the size of the down payment at the time of purchase, the interest rate of the loan, and the length of the repayment period. To help reduce the monthly payment

amount of a loan, you can choose the lowest purchase price, lengthen the term of the loan, increase the down payment, skip loan add-ons and vehicle options (such as extended warranties or window tinting), or shop for a lower interest rate. But remember, the total cost of your car loan also depends on how long you must make payments, not just on your monthly payment. A lower monthly payment may result in a longer repayment period, which could increase the total cost of the loan.

You may want to examine your net income and monthly cash flow to determine the monthly payment you can afford. You'll also want to be sure there is room in your budget for both the car loan and the other costs of car ownership, such as taxes and other fees at the time of purchase, and ongoing costs like insurance, gas, annual registration fees, maintenance, and repairs. One rule to live by is to set aside 10-15 percent of your monthly net income to cover transportation costs, but each person should decide what's best for them.

It's important to understand that a car loan is a secured loan, a loan in which your property is used as collateral. This means that if you cannot pay back the loan, the lender can take the car to get their money back. The lender can also start debt collection, can file negative information on your credit report, and might sue you. An unsecured loan (such as most types of credit cards) does not use property as collateral. If an unsecured loan is not paid back as agreed, the lender can start debt collection, can file negative information on your credit report, and might sue you.

TIP

Because financial products, terms, and laws change, students should be encouraged to always look for the most up-to-date information.

Whenever you borrow money, one rule to live by is to get a loan offer or approval from at least three lenders. When it comes to car loans, it's good to apply with a bank or credit union in addition to the dealership. For more information about shopping for a car loan, visit: <https://www.consumerfinance.gov/consumer-tools/auto-loans/>.

Teaching this activity

Whole-class introduction

- Ask students to share things that people borrow money to buy.
 - Examples may include a house, a car, concert tickets, or college textbooks.
- Ask students if they or someone they know has a car loan.
- Read the "Exploring key financial concepts" section to students.

- Be sure students understand key vocabulary:
 - **Credit:** Borrowing money, or having the right to borrow money, to buy something. Usually it means you're using a credit card, but it might also mean that you got a loan.
 - **Down payment:** Initial cash payment made when something is bought on credit, such as a home or vehicle. The down payment reduces the amount of money that is borrowed.
 - **Interest rate:** A percentage of a sum borrowed that is charged by a lender or merchant for letting you use its money.
 - **Loan:** Money that needs to be repaid by the borrower, generally with interest.
 - **Net income:** Amount of money you receive in your paycheck after taxes and other deductions are taken out; also called take-home pay.
 - **Principal:** In the lending context, principal is the amount of money that you originally received from the lender and agreed to pay back on the loan with interest.
 - **Repayment:** Paying back money you borrowed.
 - **Secured loans:** Loans in which your property (a thing you own) is used as collateral; if you cannot pay back the loan, the lender takes your collateral to get their money back. The lender can also engage in debt collection, can file negative information on your credit report, and might sue you.
 - **Term:** A fixed or limited period of time for which something lasts or is intended to last (for example, a five-year loan, a three-year certificate of deposit, a one-year insurance policy, a 30-year mortgage).
 - **Unsecured loan:** A loan (such as most types of credit cards) that does not use property as collateral. Lenders consider these loans to be more risky than secured loans, so they may charge a higher rate of interest for them. If the loan is not paid back as agreed, the lender can also start debt collection, file negative information on your credit report, and might sue you.
- Introduce the process of calculating monthly payments for an installment loan. Explain that students will use a simplified interest formula to estimate the total interest accrued in order to determine the total amount of their loan (which is interest + principal).

TIP

Visit CFPB's financial education glossary at consumerfinance.gov/financial-education-glossary/.

- The simple interest formula is: Interest = Principal x Rate x Time ($I = P \times R \times T$), where time is equal to the term of the loan.
- Demonstrate the steps by modeling the calculations for Car #1, with $T = 4$ years.
 - Formula: $I = P \times R \times T$
 - Price of the car (principal) = \$13,791
 - Rate = 5%
 - Time = 4-year loan
 - Total interest: $\$13,791 \times 0.05 \times 4 = \$2,758.02$
- Please note: This is a simplified approach to determining interest. The actual math will likely be more complicated.

Individual or group work

- Distribute the “Deciding which car and car loan you can afford” worksheet.
- Students can work individually or with a partner to complete the worksheet.

A tip for differentiating instruction

Give students the answer guide and have them focus on analyzing the calculations to choose the car and the loan options they think best meet their needs and budgets.

- Ask students to first determine their monthly transportation budgets to see how much they can afford for a car payment.
 - Explain that in this activity, they will calculate their transportation budget as 14 percent of their net income.
- Once students have a clear sense of what they can spend, instruct them to complete the calculations to determine the monthly payments for all three cars and all three time periods.
- Have students answer the reflection questions on their own.

Wrap-up

- Ask students to discuss their answers and their choices. Specifically, ask students to share their comparisons of the total cost of each of the car loans.

- Point out to students that the 72-month loans had both the highest interest cost and the highest total cost for each car. Explain that car loans with longer terms – such as 72 months, which equals six years – also are risky because if you need to sell the car or it stops working before you paid off the loan, you'll likely still owe more than the car is worth.
- If time allows, ask students to share why it might be wise to designate 10-15 percent of net income to transportation costs.

Suggested next steps

Consider searching for [CFPB activities](#) that address the topic of borrowing, including getting loans and managing credit. Suggested activities include ["Determining how down payments affect loans"](#) and ["Role-playing borrowing and lending"](#).

Measuring student learning

Students' answers on their worksheets and during discussion can give you a sense of their understanding.

This answer guide on the next page provides possible answers for the "Deciding which car and car loan you can afford" worksheet. **Keep in mind that students' answers may vary.** The important thing is for students to have reasonable justification for their answers.

Answer guide

The answers below represent the results of the suggested mathematical calculations using the simplified approach.

MONTHLY TRANSPORTATION BUDGET BASED ON \$4,000 PER MONTH IN NET INCOME

14% of net monthly income ($\$4,000 \times .14$)	\$560
Minus car insurance	- \$100
Minus gas	- \$150
Minus savings for future car expenses	- \$50
Amount remaining (monthly payment you can afford)	\$260.00

CAR #1 MONTHLY PAYMENT CALCULATIONS

Length of loan (term)	4 years (48 mos.)	5 years (60 mos.)	6 years (72 mos.)
Price of the car (principal)	\$13,791	\$13,791	\$13,791
Interest rate	5%	5%	5%
Amount of interest you'd pay ($I = P \times R \times T$)	\$2,758.20	\$3,447.75	\$4,137.30
Total cost for this car (price of car + loan interest)	\$16,549.20	\$17,238.75	\$17,928.30
Monthly estimated payment (total cost \div total # of months to pay off loan)	\$344.78	\$287.31	\$249.00

CAR #2 MONTHLY PAYMENT CALCULATIONS

Length of loan (term)	4 years (48 mos.)	5 years (60 mos.)	6 years (72 mos.)
Price of the car (principal)	\$14,712	\$14,712	\$14,712
Interest rate	5%	5%	5%
Amount of interest you'd pay ($I = P \times R \times T$)	\$2,942.40	\$3,678.00	\$4,413.60
Total cost for this car (price of car + loan interest)	\$17,654.40	\$18,390.00	\$19,125.60
Monthly estimated payment (total cost ÷ total # of months to pay off loan)	\$367.80	\$306.50	\$265.63

CAR #3 MONTHLY PAYMENT CALCULATIONS

Length of loan (term)	4 years (48 mos.)	5 years (60 mos.)	6 years (72 mos.)
Price of the car (principal)	\$14,712	\$14,712	\$14,712
Interest rate	4%	4%	4%
Amount of interest you'd pay ($I = P \times R \times T$)	\$2,353.92	\$2,942.40	\$3,530.88
Total cost for this car (price of car + loan interest)	\$17,065.92	\$17,654.40	\$18,242.88
Monthly estimated payment (total cost ÷ total # of months to pay off loan)	\$355.54	\$294.24	\$253.37