

Lesson Plan

Shut Down the Supersharks

Time Allotment: 75 mins

Curriculum Expectations

F1.1 identify a past or current financial situation and explain how it can inform financial decisions, by applying an understanding of the context of the situation and related mathematical knowledge

F1.3 compare the effects that different interest rates, lengths of borrowing time, ways in which interest is calculated, and amounts of down payments have on the overall costs associated with purchasing goods or services, using appropriate tools

C2.3 read code to predict its outcome, and alter code to adjust constraints, parameters, and outcomes to represent a similar or new mathematical situation

Prior Learning (Grade 8)

F1.4 determine the growth of simple and compound interest at various rates using digital tools, and explain the impact interest has on long-term financial planning

F1.6 compare interest rates, annual fees, and rewards and other incentives offered by various credit card companies and consumer contracts to determine the best value and the best choice for different scenarios

Learning Goals & Success Criteria

Learning Goals	Success Criteria
<ul style="list-style-type: none">• Students will learn how coding a spreadsheet can help them quickly solve problems involving iterative processes.• Students will learn how to determine an annual percentage rate (APR) from a biweekly interest rate.• Students will learn about how payday loan centres take advantage of people in debt by charging extremely high interest rates and fees.• Students will learn about alternative options to payday loan centres.	<ul style="list-style-type: none">• I can use a spreadsheet to quickly calculate the cost of borrowing money, given information about the amount of interest, recurring fees, and the length of the loan.• I can use a bi-weekly interest rate to calculate the annual percentage rate (APR).• I can explain how payday loan centres take advantage of people in debt.• I could explain to someone in debt about different borrowing options and the support that's available to them.

Learning Sequence

Minds On

- [Rick Mercer rant](#) (The Mercer Report - CBC - Aired March 13, 2018)
- Students can go to an Ontario payday loan website (eg. [cash4u.ca](#)) and search for interest rate and fee information
- Give students about 5 minutes to find the information
 - Discuss why these sites don't make this information easy to find or why they might not post it at all
 - Define **annual percentage rate (APR)** and differentiate from the interest per loan period (weekly, biweekly, etc)
 - What reasons do you think payday loan centres might give to justify the high levels of interest they charge on short-term loans?
 - The **Criminal Code of Canada says it's illegal for any lender to charge more than 60%** interest per year, but these businesses sneak in other fees in addition to the interest rate that have the effect of increasing the APR.

Action - Do the Math!

1. Exploring Spreadsheets

- In groups, give students an opportunity to figure out how much they'd owe if they borrowed like Rick Mercer's example and were unable to repay for one full year.
 - Encourage students to consider using a spreadsheet (e.g., Google Sheets, Excel or Numbers) but allow pencil/paper initially, if preferred.
 - Once students have had sufficient time to see the pattern, have students who used a spreadsheet demonstrate how they used formulas to simplify the calculations. Have all students use a spreadsheet to model this situation.
 - Highlight how to use formulas and copy/paste
 - [Sample spreadsheet](#)

2. Calculating the Annual Percentage Rate (APR)

- Ask students to approximate what the annual percentage rate is based on their spreadsheets.
- Define APR:

$$\text{APR} = \% \text{ interest per loan period} \times \text{number of loan periods in one year}$$

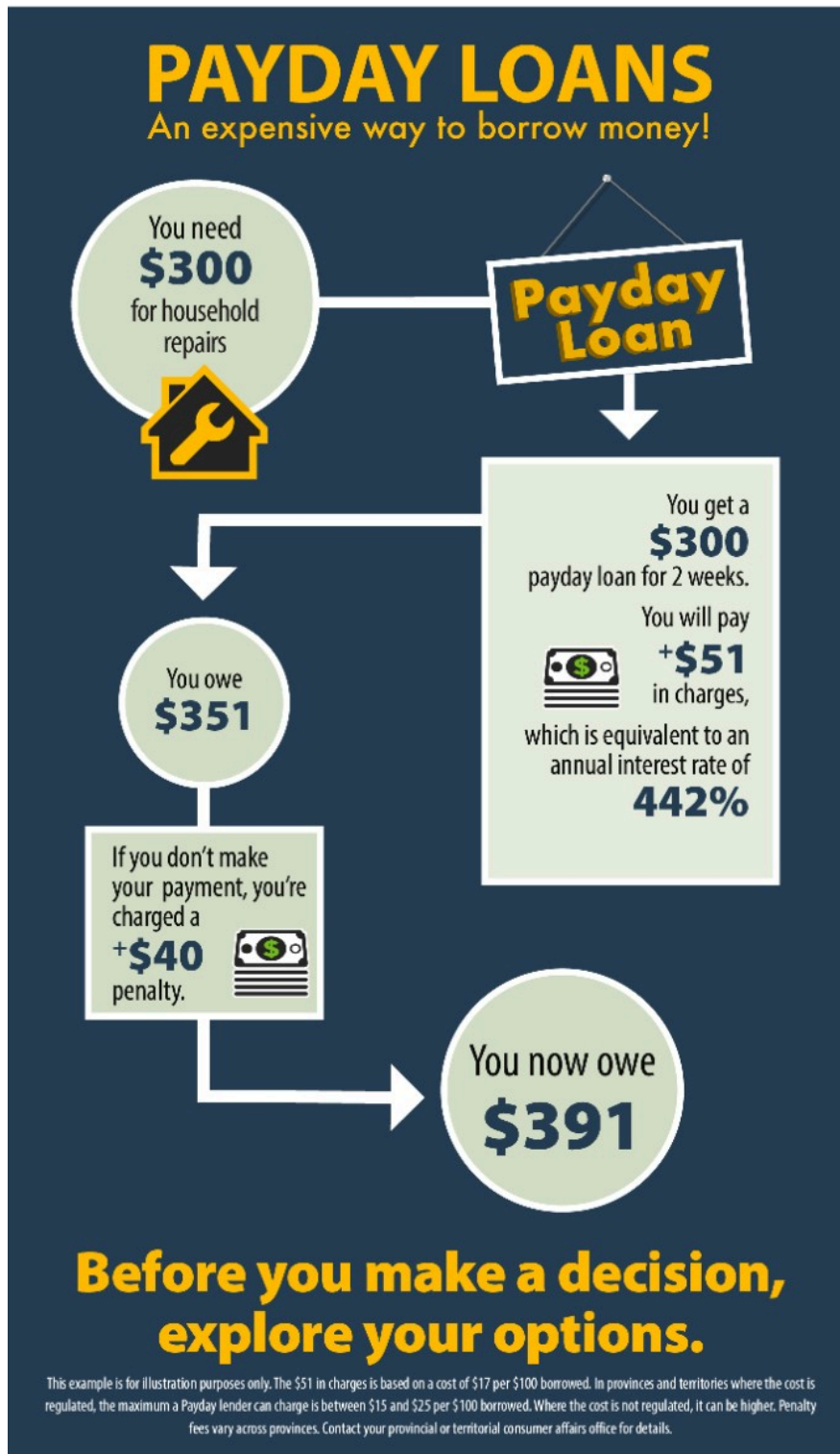
(Loan periods are usually called "compounding periods," which students will use in future math classes.)

- Have students calculate the APR for this situation, then confirm their answer as a group using [Rick's unedited rant](#).

3. Use a Spreadsheet to alter code to adjust constraints, parameters, and outcomes to represent a similar or new mathematical situation.

- Given the [infographic](#) below, change your spreadsheet to figure out how much you would owe on this \$300 loan if you couldn't pay it back for 3 months. Assume the penalty for non-payment applies at the end of each two-week period.

Financial Consumer Agency of Canada Agence de la consommation en matière financière du Canada

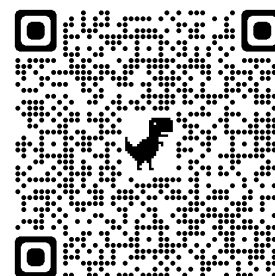


canada.ca/money

Canada

4. Exploring Alternatives to Payday Loans

Have students visit the Government of Canada's [information webpage about payday loans](#) (QR code on the right) to explore and record information that would be important if they were stuck in a debt cycle. Sample questions could include:



- If I'm stuck in a debt cycle, what help is available to me?
- What are some other ways I can borrow money?
- If I do take out a payday loan, what questions should I ask before I accept the loan?
- If I take out a payday loan in Ontario, then I regret my decision the next day, can I cancel my loan? Explain.

Consolidation

Whole Group Consolidation

- Discuss the payday loan example from the infographic
 - What was the interest per two-week period?
 - How much effective interest does the \$40 penalty add?
 - What is the effective APR for this example when you add the penalties?
 - How much interest would you end up paying on your \$300 loan after 3 months?
- Discuss the information the students found about alternatives to payday loans and what someone caught in a debt cycle should know (e.g., lower interest alternatives, credit counselling support, etc.)

Independent Consolidation

- Meaningful notes prompts:
 - Payday loan centres
 - Annual percentage rate (APR)
 - Managing debt (options and support)

Assessment Ideas

- [Exit Ticket:](#)

F1.1/1.3, C2.3: Payday Loans		
Use a spreadsheet to figure out how much interest you'll pay on the following payday loan. Add a screenshot or a link to your spreadsheet in this folder.		
Loan: \$250 Interest: 20% every two weeks Time: You can't pay for 6 weeks. Interest paid:	Loan: \$1000 Interest: 18 Penalties: \$30 at the end of each week Time: You can't pay for 6 months. Interest paid:	Loan: \$250 Interest: 8% per week Penalties: \$10 on every \$100 for non-repayment at the end of each week Time: You can't pay for 8 months. Interest paid:
What is the annual percentage rate (APR) for your loan?		
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Name one other way you could borrow money and why it could be a better option.		
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Name one resource that could help you if you find yourself in a debt cycle and how you would access it.		
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Additional Materials & Resources

- Government of Canada website: [Debt & Borrowing](#)

Extension Ideas

- Creating an infographic about payday loans that would speak to their peers
- Investigating the correlation between the number of payday loan centres by geographical area and the median income of those areas
 - See Math That Matters 2: A teacher resource linking math and social justice (pp. 100-102)

