

LESSON DETAILS

Let's go on an adventure!

Lesson summary

Students will use number sense (e.g., percentages, rates, ratios, conversions) to modify a budget for various circumstances.

Grade 9

Big ideas

Operate with numbers (fractions, decimals, percentages) in specific contexts.

Make responsible financial decisions.

Have an awareness of the concept of equity.

Learning Expectations

AA1. develop and explore a variety of social-emotional skills in a context that supports and reflects this learning in connection with the expectations across all other strands.

- recognizing and identifying emotions that support mathematical learning.
- building healthy relationships and communicating effectively in mathematics.

A1. apply the [mathematical processes](#) to develop a conceptual understanding of, and procedural fluency with, the mathematics they are learning

- problem solving
- reasoning and proving

A2. make connections between mathematics and various knowledge systems, their lived experiences, and various real-life applications of mathematics, including careers.

B3. apply an understanding of rational numbers, ratios, rates, percentages, and proportions, in various mathematical contexts, and to solve problems.

B3.3 apply an understanding of integers to explain the effects that positive and negative signs have on the values of ratios, rates, fractions, and decimals, in various contexts.

B3.4 solve problems involving operations with positive and negative fractions and mixed numbers, including problems involving formulas, measurements, and linear relations, using technology when appropriate.

C2. apply coding skills to represent mathematical concepts and relationships dynamically, and to solve problems, in algebra and across the other strands.

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.

F1. demonstrate the knowledge and skills needed to make informed financial decisions

F1.4 modify budgets displayed in various ways to reflect specific changes in circumstances, and provide a rationale for the modifications.

Cross Strand Connections

Currency conversion - link to geography

Budget management - link to accounting

Code creation - link with computer science

Learning Goals and Success Criteria:

Learning outcomes can be reviewed and modified according to vision and instructional intent. Criteria can be reviewed and modified in collaboration with students.

LG1 - We are learning to make financial decisions based on facts and point-in-time data.

SC1 - I can make changes to a budget in response to new information.

SC2 - I can justify my choices in relation to my financial decisions.

LG2 - We are learning to perform calculations with rates, fractions and percentages related to financial literacy.

SC1 - I can perform calculations (percentages, decimal numbers, fractions and conversion) and check the plausibility of my answer.

LG3 - We are learning to use financial literacy vocabulary in appropriate contexts.

SC1 - I can use financial literacy vocabulary in appropriate contexts.

SC2 - I can correctly use the units of currency.

LG4 - We are learning to initiate the possibilities of coding associated with a spreadsheet (eg: Sheets, Excel).

SC1 - I can edit a budget in a spreadsheet using the appropriate formulas and formatting.

LG5* - We are learning to collaborate with our peers to overcome challenges.

SC1 - I can demonstrate an openness to the ideas of others.

SC2 - I can actively participate in discussions in the group.

SC3 - I can come to a consensus with my group on how to solve a problem.

*Learning Goal 5 and associated success criteria are intended to help assess overall learning skills and work habits on the report card, not social-emotional learning as it pertains to the MTH1W course. This is not to be included in the mark for the course.

CONSIDERATIONS THROUGHOUT THE LESSON

Differentiated Instruction and Universal Design for Learning

Use Visibly Random Groupings to create inclusive small groups.

The teacher uses professional judgment when distributing the situation cards to ensure that each group is in its proximal development zone.

The use of software tools can be useful for students who require assistive technology such as screen readers or other specialized software.

Assessment

Observation chart ([Appendix 4](#))

Exit ticket ([Appendix 5](#))

Peer evaluation in relation to the co-constructed Success Criteria.

Self-evaluation in relation to the co-constructed Success Criteria.

RESOURCES AND LEARNING ENVIRONMENT

Educator Resources Needed

An image to spark conversation about planning a trip ([Appendix 1](#))

A copy of the observation chart ([Appendix 4](#))

Student Materials Needed

An electronic or paper copy of the budget to be modified ([Appendix 2](#))

Printed or virtual copies of situation cards ([Appendix 3](#))

Printed or virtual copies of the exit ticket ([Appendix 5](#))

Learning Environment Considerations

It is suggested that this teamwork be done with Visibly Random Groupings in an appropriately designed space.

It is suggested that money be made available to students for manipulation as needed.

LESSON CONTENT

Minds-On (20 minutes)

Introduce students with a picture, e.g. [Appendix 1](#). Ask students what they observe. Record observations. Ask students what questions they have. Record questions.

Encourage students to draw on their life experiences to contribute to the conversation.

Encourage students to think about the steps needed to plan a trip. Here are some possible prompts for inquiry questions:

- Which means of transportation should be used to get around? Which would be the most economical?
- What type of travel is involved? Leisure or work?
- What is the duration and destination of the trip?
- How much money is available to spend on this trip? What is the cost of travel to the destination?
- How many people are travelling?
- How many pieces of luggage are allowed per person? What is the maximum weight?
- What type of lodging will be required? How much will it cost?
- Are meals provided? How much money do I need for meals?
- Are any vaccinations required for this trip?

Encourage students to realize the importance of planning before going on a trip, and that one element of planning would be creating a budget.

Action (60 minutes)

Present a budget for a trip ([Appendix 2](#)). The budget should be in a foreign currency. Have students research the exchange rate between the foreign currency and the Canadian dollar. Students will need to convert the budget to Canadian dollars in order to make it useful for their situation. To integrate coding, the student should explore the commands in a spreadsheet that would facilitate the conversion of foreign currency, as well as other calculations that will be useful later in the lesson when the situation cards are presented.

*The choice of currency may take into consideration the geographic location of the school, the school's populations, and the interests and life experiences of the students.

Divide the class into subgroups and give each group a situation card ([Appendix 3](#)). Allow time to discuss the possible contingency in the given budget. Students will discuss and make any necessary adjustments to the budget by sharing ideas with each other. The teacher's observations are noted on the observation chart as he or she circulates among the groups.

The activity can be extended and enriched by using more than one situation card per group. Situation cards can be distributed randomly or strategically, depending on the instructional intent.

Extension Opportunities

By reinvesting learning that took place regarding formulas that can be used in spreadsheets, students could prepare a budget for a personal project, such as a long term financial goal, business plan, etc.

Instead of preparing the situation cards, ask students what kinds of challenges might come up when planning a trip so that the situations come from them.

Use the concept of interest to predict the value an amount of collected money will have at the end of the school year.

Consolidation (45 minutes)

Bring the students back together as a large group. Compare each team's modified budgets and strategy cards (strategy: gallery walk or three stray, one stay). Ask students what they observe in relation to the different circumstances.

Ask a spokesperson from each group to present a challenge and the impact of the challenge on the budget. The student should also demonstrate how the response to the impact was calculated, and the computations should be checked. Where possible, students would be asked to present a different way of approaching the problem to see if the solution remains the same.

Ask students about the differences in budgets. Did all groups end up with the same amount of money? Did all groups face comparable challenges?

Possible questioning:

- What were the most difficult challenges to overcome?
- How did you choose to overcome the challenges?
- What emotions did you feel when you were faced with your challenges?

Lead the students in a conversation about equity.

- How can this activity be connected to the real world?
- Which groups were positively affected by their circumstances? Which groups were negatively affected?
- How could the impact of the situations be made more equitable for all groups?

Exit Ticket : [Appendix 5](#)

APPENDICES

Appendix 1



< Image of a blue school bag, a green rolled sleeping bag and a black sports case on the ground next to a red cement exterior wall. >

[Link to the source image - www.unsplash.com](https://www.unsplash.com)

Appendix 2

[Sample budget \(with expenses\)](#)

[Sample budget \(blank\)](#)

Appendix 3

[Situation cards](#)

Appendix 4

Observation Chart: Financial Decisions

LG3 - We learn to use financial literacy vocabulary in appropriate contexts.

- SC1 - I can use financial literacy vocabulary in appropriate contexts.
- SC2 - I can correctly use the units of currency.

LG5 - We learn to collaborate with our peers to solve challenges.

- SC1 - I can demonstrate an openness to the ideas of others.
- SC2 - I can actively participate in discussions in the group.

P	Actively participates in group discussions
J	Justifies his or her positions
O	Demonstrates openness to the ideas of others
V	Uses financial literacy vocabulary correctly

Date → Names ↓									
	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV
	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV
	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV
	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV	PJOV
O	achieved criteria			/	semi-achieved criteria			X	non-achieved criteria

Additional lines can be added depending on the number of students in the class

Appendix 5

Printable exit ticket template :

Name :
Date :
Periode/Subject :
How can you relate today's lesson to the real world?
?

Name :
Date :
Periode/Subject :
How can you relate today's lesson to the real world?
?

Name :
Date :
Periode/Subject :

Name :
Date :
Periode/Subject :

How can you relate
today's lesson to
the real world?

?

How can you relate
today's lesson to
the real world?

?