Math Lesson – I Like to Save Money

Outcomes or Learning Goals

This Math lesson helps students become familiar with Canadian currency and to develop quantitative reasoning skills in addition, subtraction and multiplication. It also will address reading and recording money values and equivalence.

Grade Level

MAT1LZ – Locally Developed Math grade 9
MAT2LZ – Locally Developed Math grade 10

Context & Rationale

The book I Like to Save *Money* provides an opportunity for students to review the names and values of Canadian currency. It is important for newcomers to become familiar with Canadian currency and to have practice working with money. This book also encourages students to think about ways to save money.

Related Topics/Units

• solve problems involving money drawn from everyday situations (Gr. 9, 10)
• communicate information about money concepts/sense (Gr. 9, 10)
• write money values, using correct units (Gr. 9)
• enter decimal numbers correctly on a numerical key pad (Gr. 9)
• demonstrate the effective use of a calculator in operations with decimals (Gr. 9, 10)
• represent a given coin or bill as a combination of other coins or bills (Gr. 9)
• identify different combinations of coins and bills that would result in a given amount of money (Gr. 9)
• verbalize their observations and reflections regarding money sense and ask questions to clarify their understanding (Gr. 9, 10)
• communicate, orally and in writing, the solutions to money problems and the results of investigations, using appropriate terminology, symbols and form (Gr. 9, 10)
• explain their reasoning used in problem solving and in judging reasonableness (Gr. 9, 10)
• develop, select, and apply problem-solving strategies while posing and solving problems (Gr. 9)

Number Sense and Numeration Skills from the Ontario Mathematics Curriculum, Grades 1-8 (2005), that link well to this lesson and would support the needs of limited prior formal learning students are:

• estimate, count, and represent (using the $ symbol) the value of a collection of coins and bills with a maximum value of $10 (Gr. 3)
• represent and describe the relationships between coins and bills up to $10 (e.g., “There are eight quarters in a toonie and ten dimes in a loonie.”) (Gr. 3)

• read and represent money amounts to $100 (e.g., five dollars, two quarters, one nickel and four cents is $5.59) (Gr. 4)
• add and subtract money amounts up to $100, using a variety of tools (Gr. 4)
• read and write money amounts to $1000 (e.g., $455.35 is 455 dollars and 35 cents, or four hundred fifty-five dollars and thirty-five cents) (Gr. 5)
• add and subtract decimal numbers to hundredths, including money amounts, using concrete materials, estimation, and algorithms (Gr. 5)

Lesson Sequence

Part 1 Minds On/Prior Learning (15 minutes estimated for this section)	**What to prepare**
Activity 1. Remind students of the book they have read, **I Like to Save Money.** 2. Review the names and values of Canadian coins, if necessary. 3. Brainstorm ideas: What do you do when you want to save money for a specific item/reason? Where do you keep/store the money? How do you keep track of how much money you have? How do you keep track of how much more money is needed? 4. Money Number String This number string mini-lesson is based on a number string in *Minilessons for Extending Multiplication and Division*, p. 68, by Catherine Twomey Fosnot. Coins are equivalent to the benchmark numbers of 1, 5, 10 and 25. This number string is designed to support students in using benchmark numbers. Present each problem one at a time. For each problem, ask students: - Thumbs up when you have the answer. - What answer did you get? How do you know? - Did anyone have a different way to add? **Number String** 25 + 25 25 + 16 + 10 25 + 25 + 25 + 25 8 + 75 + 10 + 15 + 2 25 + 6 + 25 + 8 5 + 20 + 8 + 25 **Optional** Bring foreign coins and bills in to show the students, and/or show photos of currency from around the world. It is ideal if students are able to see currency with which they have some familiarity. Invite students to name money from any other country. Discuss the color, size, and value of the money.	Copies of the book *I Like to Save Money* OPTIONAL: currency, or photos of currency, from around the world A world map

Bulletin Board Idea: Put up a world map. Place labeled photos of currency around the outside of the bulletin board. Have the students mark their country on the map by using a piece of yarn to link the country with a photo of that countries' currency.	
Assessment • Observe for engagement and interest in topic • Look for students' skill in working with money: o Ability to name currency o Ability to state value of currency o Ability to compare value of currency (e.g., this bill is worth five times this coin)	
Part 2 – Work On It (30 minutes estimated for this section)	
Work in small groups - 2 per group. You worked hard to save $10.00. You have 11 coins and/or bills in your savings jar. If you have at least one $5.00 dollar bill, one toonie, one loonie, one quarter, one dime, and one nickel, how many of each coin might you have? Can you find another combination of coins that will also equal $10.00? **Extensions** What if you saved $20? If you had a combination of coins and bills that equaled $20, what combination might you have? If you put 10 (then 20 then 30) of each coin and dollar bill in the jar, how much money would you have? Do you see a pattern? **Alternate Task** Working in partners, have each pair select a country, and look up the value of its currency in relation to the Canadian dollar using this link: http://www.oanda.com/currency/converter/ Assign them a money amount appropriate to their ability e.g., 50 euros, and ask students to convert and represent that amount in Canadian currency. **Activities During Work Period** • Students work with partners and record question, work/thinking, and answer on chart paper. • Teacher visits partners to clarify the question they are answering and to see if they have a strategy to start/continue working on the problem.	Blank paper for students to record thinking and solution.

• Teacher thinks about which solutions to share in the third part of the lesson, and the order in which they will be shared. Solutions selected should show a variety of strategies (and hopefully will include the ratio table).	
Assessment For each student, observe and document: - familiarity with Canadian currency - computational strategies and fluency - use of quantitative reasoning - clear representation of the problem and communication of thinking	
Part 3 – Conclude & Share Solutions (20 minutes estimated for this section)	
Activity The solutions selected (2-4) are shared, starting with the simplest strategy and moving to the most complex. Consider which tools/models/algorithms would best support the learning of the class. Also, consider clarity of communication when selecting solutions and order in which to share. As students share their work, encourage them to discuss *how* they solved the problem. You may wish to question the students to focus attention on a particular aspect of their solution, rather than inviting the student to share their entire process/solution. Invite other students to ask questions of the presenters. At the end of the sharing, highlight key learning by recording it on the whiteboard or on chart paper. The key learning may be connected to a model or strategy used to solve the problem, or to the problem itself.	
Assessment For each student, observe and document: - familiarity with Canadian currency - computational strategies and fluency - use of quantitative reasoning - clear representation of the problem and communication of thinking	
Follow up Problems/Learning Opportunities It is important for students to have computational fluency when adding money amounts. To support students in developing strategies to efficiently add combinations of coins, refer to the money number strings in: *Minilessons for Extending Addition and Subtraction*, by Catherine Twomey Fosnot, pages 60-69.	

Assign partners a money amount appropriate to their current ability related to numeracy, and ask the pair to show a number of ways to make that quantity of money using Canadian bills and coins. Students should record their money collections on chart paper.	