Math Lesson – Money, Canadian 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

This math lesson can be used for the following ELD contexts:

- ELD-B (STEP 2)
- Intermediate grades ELD programs STEP 1-2
- Junior grades ELD programs STEP 1-3

Context & Rationale

The books *Money* and *Canadian Money* introduce students to Canadian currency. It is important for newcomers to become familiar with the values of Canadian currency and to have practice working with money. Money is used universally and is important in our lives.

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)
• 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, *Money* and/or *Canadian Money*. Review the names, colours and values of Canadian bills. Also review the names and values of Canadian coins. 2. Money Number String This number string mini-lesson is based on a number string in *Minilessons for Early Multiplication and Division*, p. 64, 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 composing and decomposing numbers using these benchmark numbers, and in developing computation strategies. It has the added benefit of helping students become more familiar with Canadian coins. This number string uses coins and a document camera. Display the coins one set at a time and give students time to calculate the total. (***Note: You may need to explain what a penny is as it is no longer in circulation and students may not have encountered it.)*** For each display, ask students: - What is the total? - How did you count it? How do you know? - Who else counted it like this? Did anyone have a different way to count? **Number String** 1 dime, 1 nickel, 3 pennies (18¢) 2 dimes, 1 nickel, 3 pennies (28¢ - 10¢ more) 3 dimes, 1 nickel, 3 pennies (38¢ - 10¢ more) 2 dimes, 2 nickels, 3 pennies (33¢ - 5¢ less - dime is traded for a nickel) 3 dimes, 3 pennies (33¢ - same since 2 nickels replace a dime) 3 dimes, 3 nickels (45¢) 4 dimes, 4 nickels, 3 pennies (63¢ - who counted 2 nickels as 10¢?)	Copies of the book *Money* and/or *Canadian Money*

Assessment Observe for engagement and interest in topic. Look for students' skill in working with money: - Ability to name currency - Ability to state value of currency - Ability to compare value of currency (e.g., this coin is worth twice as much as this coin)	
Part 2 – Work On It (30 minutes estimated for this section)	
Work in small groups - 2 per group. Select a problem from the menu of problems below: Provide students with a picture of a collection of coins (see Appendix A). This collection of coins shows the coins in Nabiha's wallet. How much money does Nabiha have in her wallet? How do you know? Nabiha has more than one dollar in coins in her wallet. What coins might Nabiha have in her wallet? How do you know? Pick one bill ($5, $10, $20, $50 or $100). If you wanted to trade that bill for an equal amount of money, what combination of bills and coins might you end up with? Assign partners a money amount appropriate to their current ability related to numeracy. Perhaps this amount is the cost of an item from an advertisement. 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. **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. • Teacher thinks about which solutions to share in the third part of the lesson, and the order in which they will be shared.	Blank paper for students to record thinking and solution.

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 solution/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, continue to 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 Select a new problem from the problem menu. 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 Early Addition and Subtraction*, by Catherine Twomey Fosnot, pages 63-66.	

Appendix A