FINANCIAL LITERACY

Guide to Effective Instruction in Mathematics

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1. WHY

Strand Overview: Financial Literacy

Students need the skills and knowledge to manage the health of their personal finances with confidence and competence, while being mindful of the world around them.

Financial Literacy goes beyond money and financial knowledge. It helps students:

- gain confidence and ability to use knowledge, concepts and skills;
- make informed decisions while taking into account ethical, societal, environmental and personal considerations[1].

The Financial Literacy strand provides opportunities for students to learn about economics and finance in relevant and realistic contexts. The concepts to be learned in Financial Literacy can be easily integrated into a variety of disciplines and allow the student to make informed decisions. Educators have the opportunity to effectively question students using mathematical processes, taking into account social-emotional learning to enable them to succeed in financial management. Educators provide opportunities for students to experience a variety of family, cultural, or community realities and demonstrate inclusiveness in their instruction.

The Financial Literacy strand is organized into three themes: Money Concepts, Financial Management, and Consumer and Civic Awareness.

In the 2005 curriculum, financial literacy concepts were limited to a basic understanding of money and currency. In the 2020 mathematics curriculum, financial literacy learning becomes a mathematical strand in itself and addresses several concepts, including understanding the value of money and its use over time, managing financial well-being, and the importance of budgeting.

Over the years, students will have the opportunity to develop skills and knowledge related to the use of money, the value of money, and the effect of financial decisions on personal finances while developing environmentally responsible consumption practices and inclusive citizenship. Students will also learn to manage their personal finances responsibly by establishing a budget to achieve their short-, medium-, and long-term goals. In addition, they will develop critical thinking skills in relation to the purchasing process and become aware of the effect of their consumption on the local and global economic system.

Number Strand: Gateway to Financial Literacy

Throughout their school years, students will discover the world of numbers and develop fundamental skills in mathematical computation and mathematical problem solving for everyday life. The Number strand provides students with opportunities to become comfortable performing various mathematical operations using numbers (natural and whole numbers, integers, rational numbers and real numbers) in authentic, real-life mathematical situations.

1 Source: Financial Literacy Education in Schools.

The Number strand is strongly related to the other strands of mathematics, including the application of knowledge, concepts, and skills about:

- numbers and operations to calculate the change required for a purchase;
- percents to calculate sales tax and interest;
- unit rates to compare products and services, and mental calculations to quickly determine the best value;
- social-emotional learning for confident and informed consumption and financial well-being management.

Financial literacy is an effective way to contextualize and present the big ideas of the Number strand because it is based on real-life learning situations.

Some examples

In the primary division, handling coins and bills provides complementary representations of numerical quantities. Students benefit from another context for becoming more comfortable and confident with the relationship between money value and numerical quantity. Numbers such as 5 and 10 are familiar anchors and students have the opportunity to continue skip counting in another context and can further develop their strategies with 5 and 10 cents as anchors.

Calculating change to be given in a variety of simple cash transactions helps students develop reasoning and inference strategies, when working with basic number facts. Students have the opportunity to practice concepts of counting, quantity, and operation sense, among others. Making change supports students in their development of mental arithmetic and builds their confidence in using their number sense in everyday situations.

Financial literacy provides an important opportunity for students to explore and understand proportional reasoning in an everyday context. For example, in the junior division, students have the opportunity to calculate unit rates to compare products and services in order to quickly determine which are the best value. Later, in the intermediate division, students have the opportunity to further develop their proportional reasoning by using exchange rates to convert currencies.

Research has demonstrated that students have difficulty applying proportional reasoning to many contexts, as described in Paying Attention to Proportional Reasoning.

"Susan Lamon estimates that over 90% of students who enter high school cannot reason well enough to learn mathematics and science with understanding and are unprepared for real applications in statistics, biology, geography or physics (Lamon, 2005, p. 10). While students may be able to solve a proportion problem with a memorized procedure, this does not mean that they can think proportionally[2]."

The Financial Literacy strand contains powerful concepts to build on the skills and knowledge of the other strands, especially Number, and thus further develops a variety of mathematical reasoning skills.

2 Source : Paying Attention to Proportional Reasoning, Support Document for Paying Attention to Mathematical Education, p. 4.

The Importance of Financial Literacy

"Financial literacy is knowledge and understanding of financial concepts and risks, as well as the skills and attitudes to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life[3]."

In recent years, developed and emerging economies have demonstrated the real importance of the education system in shaping an informed citizenship in the area of financial literacy.

"A lack of financial literacy leaves people ill-equipped to make appropriate financial decisions, which could, in turn, have tremendous adverse effects on both personal and, ultimately, global financial resilience[4]."

"Young people and children increasingly have access to financial products and services. Data from the PISA 2012 and 2015 financial literacy assessments revealed that many 15-year-old students hold bank accounts and prepaid debits cards (as these students are minors cards and accounts are typically opened with the consent of a parent or guardian). In 2015, on average across the 10 participating OECD countries and economies, 56% of students held a bank account. In Australia, the Flemish Community of Belgium, the participating Canadian provinces and the Netherlands, more than seven in ten students held a bank account (OECD, 2017[14]). In some countries, like China, the Netherlands, Russia and the UK, children as young as five or six can use debit cards linked to their parents' accounts (Imaeva et al., 2017[15]). Such access could potentially provide young people with the opportunity to gain practical experience with parental oversight, assuming the basic prerequisite of a financial landscape with robust regulation and financial consumer protection[5]."

Why is Financial Literacy Important to Ontario Students?

The Working Group on Financial Literacy has addressed this issue. A 2009 study by Youthgraphy, commissioned by the Investor Education Fund, found that:

- only 28 per cent of students felt that they were knowledgeable about money and that they made good spending decisions;
- in response to questions about specific financial topics, students assessed their own knowledge as being low, and 57 per cent felt that schools should provide them with information on managing money and personal finance;
- only 38 per cent of students felt prepared to manage their money after graduation[6].

In the 2005 mathematics curriculum for grades 1 to 8, students were provided with learning opportunities to develop various problem-solving skills and develop understanding of numbers, quantities, proportional relationships and equations, all of which are related skills that can be used in financial literacy. However, the link between these skills and financial literacy is not always obvious.

3 Source : PISA 2021 – Finacial Literacy Analytical and Assessment Framework, p. 18.
4 Source : PISA 2021 – Finacial Literacy Analytical and Assessment Framework, p. 7.
5 Source : PISA 2021 – Finacial Literacy Analytical and Assessment Framework, p. 8.
6 Source: A Sound Investment - Financial Literacy Education in Ontario Schools - Report of the Working Group on Financial Literacy, p. 8.

In order to ensure a continuum and development of financial literacy skills among students, the Working Group developed specific themes that need to be covered in financial education programs. They include an understanding of:

- the concepts of income, money, earning, saving, spending, investing, budgeting, credit and borrowing, risks and rewards, compound interest, pensions, insurance,
- taxes, and planning ahead;
- how the financial system works;
- the difference between wants and needs;
- consumer awareness and advertising;
- fraud and its consequences;
- future consequences of financial decisions;
- how to plan for life after high school[7].

The Ontario mathematics curriculum for Grades 1 to 8 (2020) introduces and integrates financial literacy education in an age-appropriate and relevant manner.

Transferable Skills and Financial Literacy

"Based on international research, information provided by employers, and its work with jurisdictions across Canada, the Ontario Ministry of Education has defined seven important categories of transferable skills – sometimes referred to as "competencies" – that will help students navigate the world of work and meet with success in the future[8]."

Ontario educators have a duty to prepare the next generation. Transferable skills can be developed in the Financial Literacy strand, along with mathematical skills. This strand, which includes concepts such as borrowing, financial trading, interest rates, discounts, and loyalty programs, provides educators with a unique opportunity to support students to make learning-rich decisions for the future.

Critical Thinking and Problem Solving

Students will develop strategies for analyzing different information and making informed decisions in order to solve complex and real-life problems with a financial context, such as interest, methods of payment, and loans. In addition, students will develop strategies and criteria for evaluating the effectiveness and necessity of a purchase.

Innovation, Creativity, and Entrepreneurship

Students will identify solutions to a variety of community problems and needs, and analyze situations to explore, improve, and communicate ideas for maximizing earnings. Students will ask questions to develop an understanding of financial literacy concepts as well as an understanding of the factors involved in making decisions in a specific situation. In addition, through learning situations and projects, students will use their creative ideas to propose solutions to social, economic, and environmental problems.

7 Source: A Sound Investment - Financial Literacy Education in Ontario Schools - Report of the Working Group on Financial Literacy, p. 13.

8 Source: Transferable Skills.

Self-Directed Learning

Students will develop strategies for self-regulation, perseverance, and resilience as they complete a variety of tasks, while developing their ability to adapt to a world in which financial literacy is constantly changing (for example, methods of payment, interest rates, and loyalty programs). Students will reflect on how they learn, what they do, their experiences, and their values, and will be able to identify personal academic, career, and financial goals. Students will develop a healthy relationship with money and financial concepts, which will contribute to their overall mental health and well-being.

Communication

Students will develop strategies for receiving and expressing a message effectively. Financial literacy provides opportunities for students to ask effective questions to gain knowledge and recognize the perspectives of many people in order to analyze their financial realities. This communication is especially important in the information age where it is important to create a positive digital footprint. In their research, students will look at websites of different banks, companies and customer reviews of goods and products purchased to make judgments using information from multiple sources.

Collaboration

Students will learn to collaborate and apply different cognitive skills to solve real-life problems. Students will recognize different sources of knowledge and take into account differing opinions within their group to make financial decisions. In addition, students will develop insight into positive and respectful relationships in the workplace and in their interactions with financial institutions.

Global Citizenship and Sustainability

Students will develop understanding about the realities of financial inequality among different economic classes. Students will reflect on strategies to address these issues in order to provide effective and equitable solutions. With an openness to different backgrounds and cultures, students will develop cross-cultural understanding, which will help them to show respect and empathy for others.

The ability to shop online at all hours of the day and night can lead to overconsumption. Students be engaged to think about their ecological footprint from a young age.

Global citizenship and sustainability are closely linked to financial literacy, as without the awareness of the personal, cultural and financial realities of others, it is difficult to understand their needs and therefore create a better, more sustainable future.

Digital Literacy

Financial literacy and digital literacy go hand in hand. You don't have to go to a bank machine to access your money or your records. Financial institutions offer digital banking services that can be accessed from a smartphone or computer. It is therefore important for students to develop skills on how to use the appropriate digital tools and to use them in a legal, safe and ethically responsible manner.

Early in their education and especially after graduation, students will be faced with many financial decisions. Educators should be mindful that they are equipping students to make good personal and community decisions. Transferable skills guide students in making decisions about their future. The seven skills, which are of great value in an ever-changing world, encompass skills that students develop over the years and will be developed by educators through an inclusive, safe and equitable learning environment[9].

Role of the Educators

Educators must place students at the heart of learning. Focusing on student learning and success provides students with unique and enriching situations that are relevant to their experience and reality.

"Every child should feel that he or she belongs, is a valuable contributor to his or her surroundings, and deserves the opportunity to succeed. When we recognize children as capable and curious, we are more likely to deliver programs and services that value and build on their strengths and abilities[10]."

Culturally Relevant and Responsive Pedagogy

It is important for educators to develop a pedagogical approach of authentic and active listening. Educators should to spend time listening to students, and allow them to collaborate and learn from their own and their peers' experiences in order to deepen their knowledge and learning. Listening authentically to students requires awareness of one's own biases, preconceptions, and other filters that may influence interpretation.

Financial literacy instruction can easily be influenced by educators' biases. It is important for educators to be able to recognize and address their own biases about financial literacy in order to provide effective and fair instruction. Some topics may be more sensitive than others. This sensitivity can be caused by both educators' and students' experiences. In order to maximize effective teaching of the subject matter, educators need to learn as much as possible about the different social, economic, and cultural backgrounds of their students and how these backgrounds influence their learning, achievement, and well-being. These differences should be viewed as resources that can contribute to student learning rather than barriers. By gaining this information, educators are able to create culturally responsive financial literacy learning situations drawn from students' daily lives and culturally responsive. "Culturally responsive teachers share a particular set of dispositions and skills – a mindset that enables them to work creatively and effectively to support all students in diverse settings.[11]." These educators demonstrate socio-cultural consciousness, high expectations and a desire to make a difference in the classroom. All of this ensures that financial literacy is taught appropriately to students in Ontario schools.

9 Source: Transferable Skills

10 Source: Capacity Building Series, Student Voice, Transforming Relationships

11 Source: Capacity Building Series, Culturallly Responsive Pedagogy, Towards Equity and Inclusivity in Ontario Schools

SOCIO-CULTURAL CONSCIOUSNESS	HIGH EXPECTATIONS	DESIRE TO MAKE A DIFFERENCE
Educators understand the importance and influence of socio-cultural structures on student and group well-being and learning.	Educators are positive and seek to value students from all economic and cultural backgrounds.	Educators seek greater equity and inclusion among students. They see themselves as agents of change.

Importance of Questioning

It is important that educators use effective questioning that leads students to reflect on and clarify their mathematical thinking in relation to financial literacy. To do this, educators provide students with mathematical experiences that honours the principle that sustainable learning is always social-emotional.

Through questioning, each educator can offer the student the opportunity to deepen their thinking about how to make the world a better place. Educators must be able to recognize that "each person, family, or community may be facing a different financial situation, and some of these financial situations may be challenging or difficult[12] ". This sensitivity will create a safe, respectful and inclusive learning environment for discussions. The educator should ensure that all perspectives and opinions regarding financial concepts are welcomed. The educators sensitive and effective questioning provides an opportunity for the student to define inequities and find solutions.

The development of higher-order thinking skills coupled with effective questioning will provide opportunities for students to experience authentic tasks where social justice and social responsibility predominate.

12 Source: https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-mathematics/grades/g7-math/strand-f/f1.

2. HOW?

Theme 1: Money Concepts

Teaching money concepts equips young children for real-world experiences that are likely already familiar with.

In the primary division, students learn about the value and use of money by identifying Canadian coins and bills, representing different amounts of money, and calculating simple money transactions. In the late primary and junior divisions, students continue to learn about estimating and calculating transaction costs, without and then with sales tax. Students also learn about different methods of payment and analyze their advantages and disadvantages. Finally, in the intermediate division, students explore foreign currencies and convert other national currencies into Canadian dollars and vice versa.

Monetary Value

Identifying Canadian Coins and Bills up to $50

In order to identify Canadian coins, students must be able to describe them using different attributes such as size, shape, colour, image and texture. The student should be able to use the correct vocabulary to describe the attributes, without needing to use the exact or precise term. For example, the student describes the image on the 10¢ coin as a boat, and does not need to use the term *Bluenose* in order to be assessed for their ability to describe coins.

For bills up to $50, students should be able to describe them using the different attributes including colour, image, and symbol.

COMMON CANADIAN COINS

NAME OF THE COIN	DESCRIPTION	PHOTO
Nickel – worth 5¢	• Colour: silver • Tails side: beaver • Heads side: portrait of Queen Elizabeth II • Shape : circular • Texture: the edge of the nickel is smooth. • Size: the nickel is larger than the dime.	

NAME OF THE COIN	DESCRIPTION	PHOTO
Dime – worth 10¢	• Colour: silver • Tails side: image of a schooner (representation of the *Bluenose*) • Heads side: portrait of Queen Elizabeth II • Shape : circular • Texture: the dime has ridges. • Size: the dime is smaller than the nickel.	 
Quarter – worth 25¢	• Colour: silver • Tails side: image of a caribou • Heads side: portrait of Queen Elizabeth II • Shape : circular • Texture: the quarter has ridges. • Size: the quarter is larger than the nickel and dime.	 
Loonie – worth $1	• Colour : gold • Tails side: image of a loon • Heads side: portrait of Queen Elizabeth II • Shape: hendecagon (11 sides) • Texture: the edge of the loonie is smooth. • Size: the loonie is larger than the nickel, dime, and quarter.	 
Toonie – worth $2	• Colours: silver and gold • Tails side: image of a polar bear • Heads side: portrait of Queen Elizabeth II • Shape : circular • Texture: the toonie has ridges. • Size: the toonie is larger than the nickel, dime, quarter, and loonie.	 

COMMON CANADIAN BILLS

BILL NAME	DESCRIPTION	PHOTO
5 dollar bill	• Rectangular bill in blue polymer. • Image of *Canadarm 2* on one side and portrait of Sir Wilfred Laurier on the other side.	
10 dollar bill	• Rectangular bill in purple polymer. • Image of VIA Rail Canada's *Canadian*, a train that crosses the country from Toronto to Vancouver on one side and a portrait of Sir John A. Macdonald on the other side. There is also a vertically oriented bill with an image of the Canadian Museum for Human Rights in Winnipeg, Manitoba on one side and a portrait of Viola Desmond on the other side.	 
20 dollar bill	• Rectangular bill in green polymer. • Image of the Canadian Vimy Memorial on one side and a portrait of Queen Elizabeth II on the other side.	
50 dollar bill	• Rectangular bill in red polymer. • Image of the Canadian Coast Guard icebreaker *Amundsen* on one side and a portrait of William Lyon Mackenzie King on the other side.	

RARE CANADIAN COINS

NAME OF THE COIN	DESCRIPTION	PHOTO
50 cent coin	• Colour: silver • Tails side: image of the Canadian Coat of Arms • Heads side: portrait of Queen Elizabeth II • Shape : circular	
Silver one dollar coin (limited use)	• Colour: silver • Tails side: image of a "voyageur" and an Indigenous person paddling a birch bar canoe • Heads side: portrait of Queen Elizabeth II • Shape : circular	
One cent coin (no longer issued)	• Colour: copper • Tails side: maple leaves • Heads side: portrait of Queen Elizabeth II • Shape : circular	

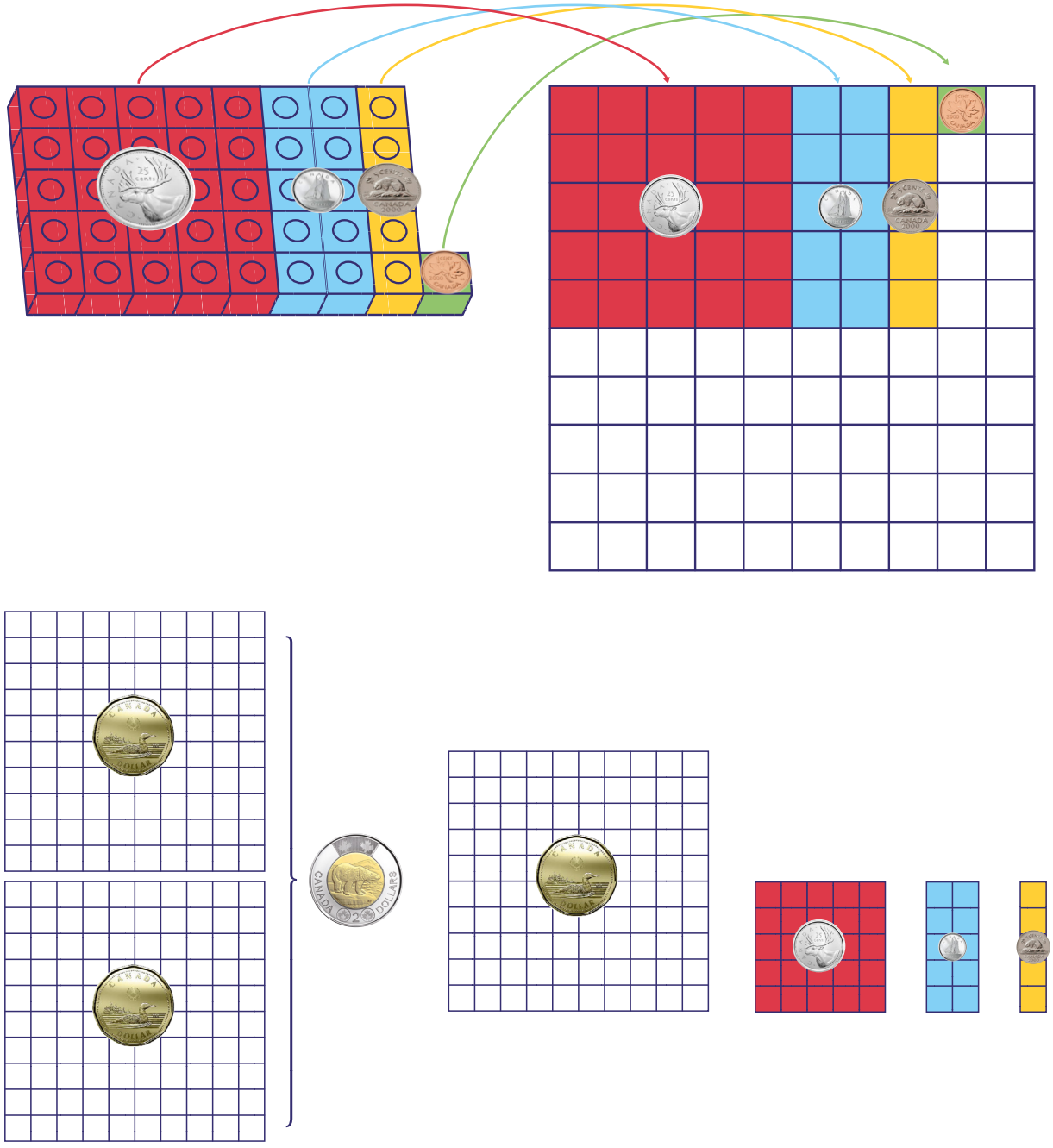
Comparing the Value of Coins and Bills up to $50

The ability to determine the correspondence between the abstract concept of value and its concrete representation in the form of coins and bills is an important skill. The value of money is an abstract concept for primary division students.

By comparing the value of Canadian coins and bills, students learn and apply different counting key concepts in a real-life setting.

You may notice that students compare coins by size rather than value. In order to properly represent the value of coins, educators can use proportional models. These models simplify the teaching of monetary value by representing them in a concrete way.

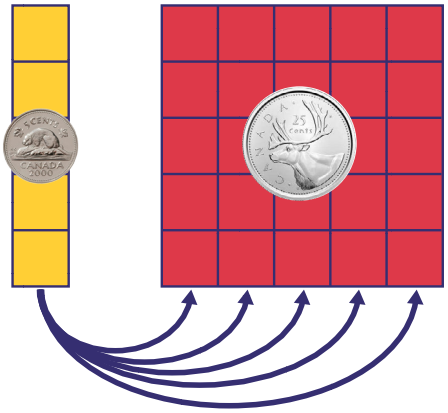
The visual representation of coins first using interlocking cubes[13] then using a blank hundreds chart allows students to create a mental representation of these values.



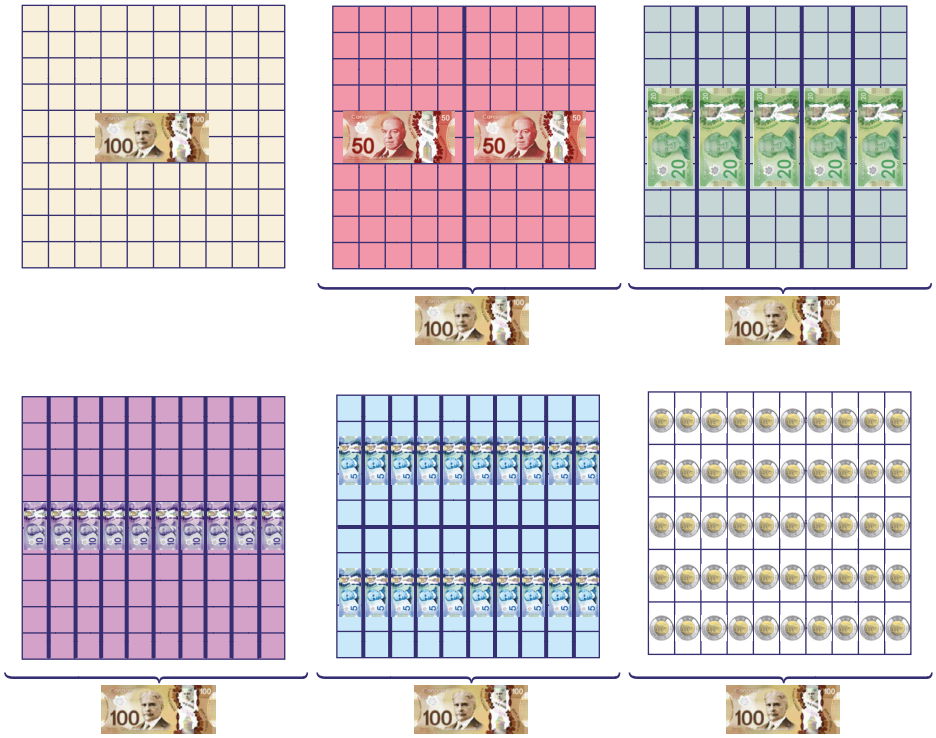
If we want to relate the dollar to the coins (cents), we can say that a small square represents 1¢.

13 Source: inspired by Counting Money with Value-Sized Blocks.

An example of the true relationship between the value of a 25¢ coin and the value of a 5¢ coin is visually represented, as the 25¢ model is five times larger than the 5¢ model.

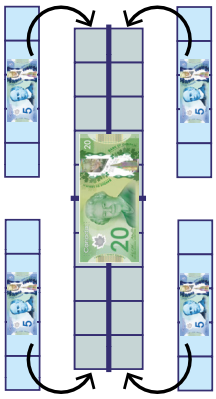


The value of the bills can be represented in the same way, when the hundreds chart represents $100.



If we want to relate the dollar to coins (cents), we can say that a small square represents $1.

An example of the relationship between the value of a $5 bill and the value of a $20 bill is visually represented, as the $20 model is four times larger than the $5 model.



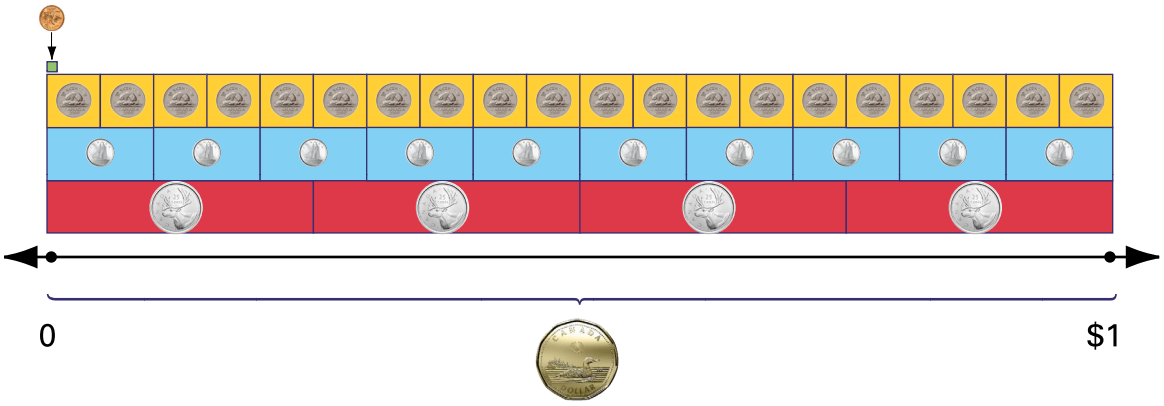
The following key concepts of counting are important for understanding the concept of value.

- Unitizing: Unitizing, the idea that, in the base ten system, objects are grouped into tens once the count exceeds 9, provides an understanding of the concept of place value. Students practice their understanding of unit transformation (unitization) by understanding the relationship between coins and their value and bills and their value. The block model or the hundreds chart model allow students to visualize the value of various coins and bills[14].
- Subitizing: Subitizing is the ability to recognize small quantities without having to count each of the objects. Activities designed to develop this skill in relation to coins or bills (for example, using blocks or the blank hundreds chart) help students develop mental and proportional representations of quantities associated with different coins and bills[15].

Making connections between coin values and bill values allows the student to compare and order them.

The number line is a good tool to help students compare and order numbers and thus coins and bills. Students who understand this ordering relationship on a number line can solve problems creatively and perform simple calculations.

We can use the number line to represent the coins in relation to the dollar and to each other.



14 Source: Based on Guide to Effective Instruction in Mathematics, Grades 1-3, p. 12
15 Source: Based on Guide to Effective Instruction in Mathematics, Grades 1-3, p. 35

For example,

- four quarters is equivalent to one loonie;
- ten dimes is equivalent to one loonie;
- twenty nickels is equivalent to one loonie;
- two nickels is equivalent to one dime;
- five dimes is equivalent to two quarters;
- five nickels is equivalent to one quarter.

Students develop a better understanding of the value of coins and the value of bills as they establish and use the relationships between these values. By recognizing and understanding relationships in ordering numbers, students are able to compare quantities using the terms *more, less,* or *the same as*. This understanding is a prerequisite for understanding the *one more than* and *one less than* relationships. As students explore the concept of whole and parts, they develop an understanding of equality (for example, 10¢ + 10¢ = 5¢ + 5¢ + 5¢ + 5¢ and 25¢ + 25¢ = 10¢ + 10¢ + 10¢ + 10¢ + 10¢ or $5 + $5 = $10 and $20 = $5 + $5 + $5 + $5). Later in the grades, students continue to explore this concept to make connections between a fraction and a part of a whole or set (for example, 25¢ is one fourth of $1 and 5¢ is one half of 10¢ or $5 is one fourth of $20 and $50 is one half of $100). With visual and proportional representations of the value of coins and bills, these relationships are obvious. By practicing ordering coins and bills using concrete, visual, and proportional representations, students think about the relationships between different values[16].

Identifying Different Ways of Representing the Same Amount of Money

Using the concepts of composition and decomposition of whole numbers from the Number strand, students use money to find many ways to arrive at the same value (quantity) using concrete or visual proportional representations of coins and bills.

Money is a concrete representation of unitized sums of numbers. Students can practice representing quantity by first using concrete, visual, and proportional representations of coins and bills (interlocking cubes and the hundreds chart model) as well as writing down sums of money and matching them to their concrete or visual representation.

A sum of money can be represented in a variety of ways, such as using manipulatives, a structured list, or drawings.

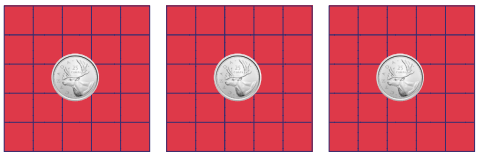
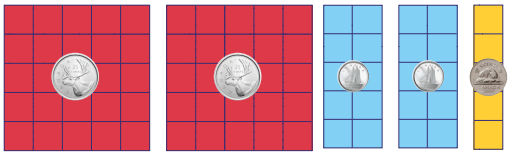
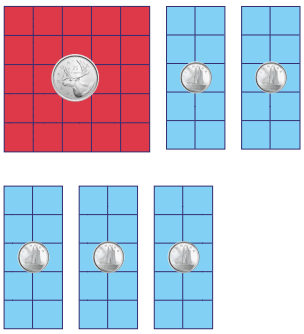
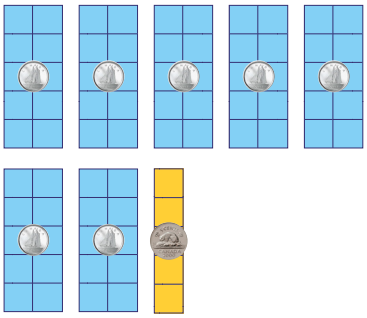
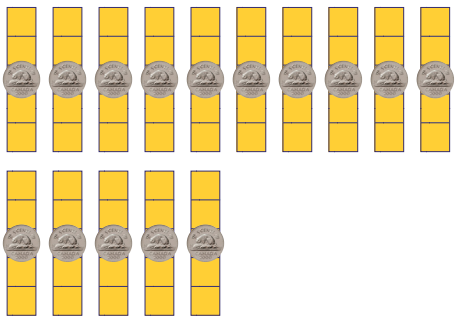
To obtain a desired amount of money by combining coins and bills, it is necessary to understand the relationship between each bill or coin and its value. Using number sequencs or patterns to break down the values of coins or bills allows the student to understand the relationships between different representations of the same sum of money.

Students learn more about the value of money and bills by skip counting and by composing and decomposing numbers.

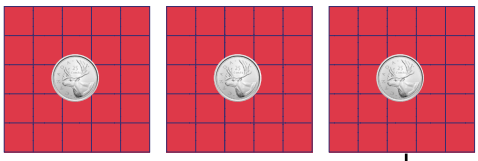
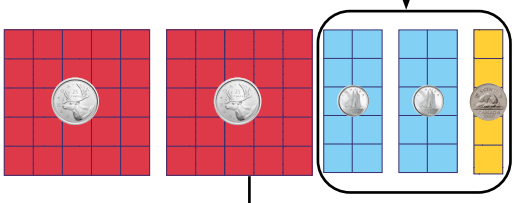
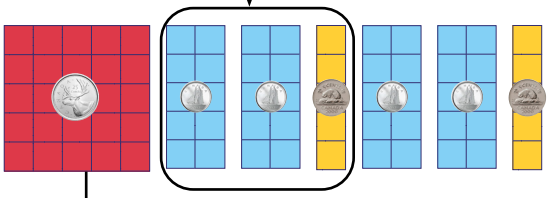
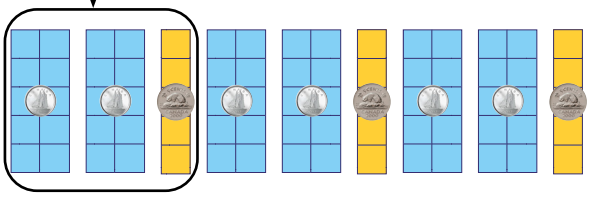
To represent 75¢, several combinations of coins can be used.

16 Source: Based on Guide to Effective Instruction in Mathematics, Grades 1-3, p. 46.

Here are five possible combinations using the cubes model to represent the sum of 75¢ in concrete terms.

REPRESENTATION USING MODELS	COINS	SYMBOLIC REPRESENTATION
As few coins as possible 		25¢ + 25¢ + 25¢
		25¢ + 25¢ + 10¢ + 10¢ + 5¢
		25¢ + 10¢ + 10¢ + 10¢ + 10¢ + 10¢
		10¢ + 10¢ + 10¢ + 10¢ + 10¢ + 10¢ + 10¢ + 5¢
As many coins as possible 		5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢ + 5¢

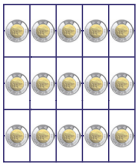
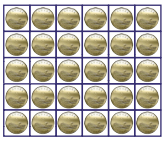
Students can also use a pattern to determine different ways to arrive at the sum of 75¢.

REPRESENTATION USING MODELS	COINS	REPRESENTATION IN WORDS
		I start with three 25¢ coins.
	 Two 25¢ coins Two 10¢ coins One 5¢ coin	When the number of 25¢ coins decreases by 1, the number of 10¢ coins increases by 2 and the number of 5¢ coins increases by 1, since 25¢ is decomposed into 10¢ + 10¢ + 5¢.
	 One 25¢ coin Four 10¢ coins Two 5¢ coins	
	 Six 10¢ coins Three 5¢ coins	

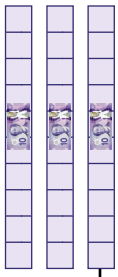
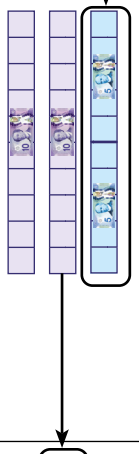
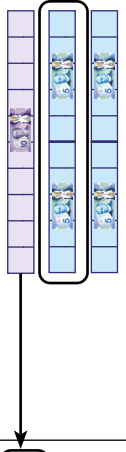
Students learn that there are many ways to represent the same amount of money using different bills and coins of at least one dollar.

Example 1

Here are five different combinations of bills and coins of at least one dollar to represent $30.

REPRESENTATION USING MODELS	BILLS AND COINS	SYMBOLIC REPRESENTATION
As few bills and coins as possible 		$20 + $10
		$2 + $2 + $2 + $2 + $2 + $2 + $2 + $2 + $2 + $2 + $2 + $2 + $2 + $2 + $2
		$10 + $10 + $5 + $2 + $2 + $1
		$10 + $5 + $5 + $5 + $2 + $2 + $1
As many coins or bills as possible 		$1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1 + $1

Students can also use a pattern to determine different ways to arrive at $30.

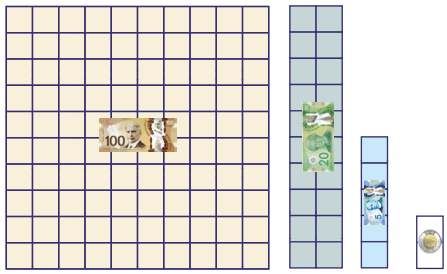
REPRESENTATION USING MODELS	BILLS	REPRESENTATION IN WORDS
	 Three $10 bills	I start with three $10 bills.
	 Two $10 bills Two $5 bills	When the number of $10 bills decreases by 1, the number of $5 bills increases by 2, since $10 is decomposed into $5 + $5.
	 One $10 bill Four $5 bills	
	 Six $5 bills	

Example 2

The cost of four items is $127. Show different ways to pay for these items using various strategies.

Strategy 1

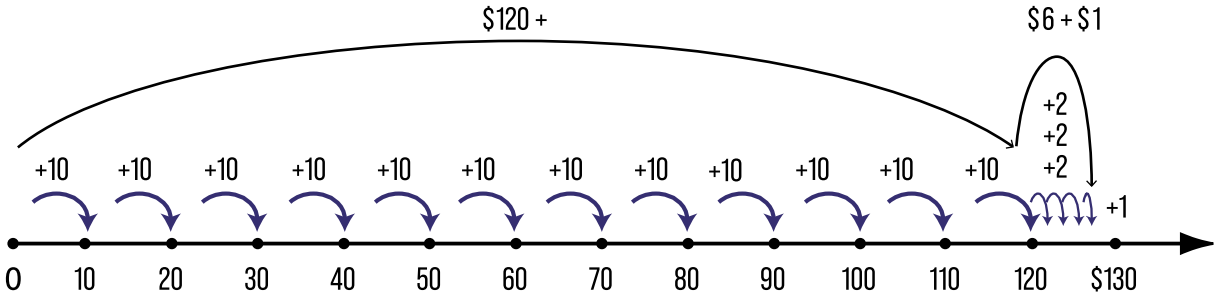
I use the hundreds grid model to represent $127.



Here is my equation: 100 + 20 + 5 + 2 = 127

Strategy 2

I use the number line to represent bills and coins of at least one dollar to arrive at $127.



I make twelve hops of 10, three hops of 2 and one hop of 1.

Then I take the bills and coins according to what is represented on the number line. I can pay for the items with 12 $10 bills, 3 $2 coins and 1 $1 coin.

Strategy 3

I use play money to represent the amount, and use skip counting. I use 2 $50 bills, 1 $20 bill, 1 $5 bill, and 1 $2 coin. My count then becomes 50, 100, 120, 125, 127.

Mathematical Concepts

During discussions about monetary value, students can make numerous connections to mathematical concepts found in other strands, such as:

- Understanding the value of each coin and bill uses unitization and proportional reasoning.
- Representing the same amount of money using different combinations of coins and bills allows students to practice decomposing numbers and emphasizes understanding of number relationships and regularities in number patterns.
- Coins and bills have values that allow for the practice of concepts related to skip counting or from a number.

Transactions

Estimating and Calculating Change

Students learn to estimate and calculate change for a variety of simple cash transactions involving dollar amounts and amounts less than one dollar.

Estimating, the result of a quick mental calculation, is very useful when an exact answer is not needed. Therefore, it is important that students develop the skills necessary to estimate and realize that estimating is an informal action that should be performed before making the calculation of the change to be given. The purpose of estimating is not to be as close to the actual sum as possible, but to determine a likely answer.

In the case of dollar transactions, the student should first round the cost of the transaction and then estimate the change to be given. By the end of the primary division, students learn to round to the nearest 10 and 100. Later, students calculate the exact change to be given using addition or subtraction strategies.

For transactions involving cents, students also use rounding to calculate the change to be given back from a money transaction, since the cost of the transaction must be rounded to the nearest multiple of five cents.

Note: Each sale total (including tax) is calculated to the nearest cent. Only the total cost of a cash transaction is rounded to the nearest multiple of five cents.

The 1¢ coin has a legal existence, but it no longer circulates as a coin. This means that students must be able to round to the nearest multiple of 5¢ for any cash transaction.

For example:

Round down to the closest 5 cents:

The amounts of 41¢ and 42¢ are rounded to 40¢.

The amounts of 46¢ and 47¢ are rounded to 45¢.

Round up to the closest 5 cents:

The amounts of 73¢ and 74¢ are rounded to 75¢.

The amounts of 78¢ and 79¢ are rounded to 80¢.

The total ends with:
1, 2, 6, 7: round down
3, 4, 8, 9: round up

The following are examples of situations where there is change to be given in simple monetary transactions.

Monetary transaction

Payment in cash or other forms of payment for certain goods or services.

Example 1: Calculation performed by breaking down bills and coins of at least one dollar

You invite your friend to the movies to celebrate his birthday. You need to make sure you have enough money for the admission tickets and refreshments, which together cost $38. You have $50 to spend and you want to know how much money is left over.

I estimate that the total cost is about $40 and that the change to be returned will be about $10, because

$$\$50 - \$40 = \$10$$

I calculate the change to be given using subtraction.

$$\$50 - \$30 = \$20$$

$$\$20 - \$8 = \$12$$

or

or

or

Example 2: Calculation performed by "thinking" addition to subtract with coins

You want to buy a chocolate bar that costs 68¢.

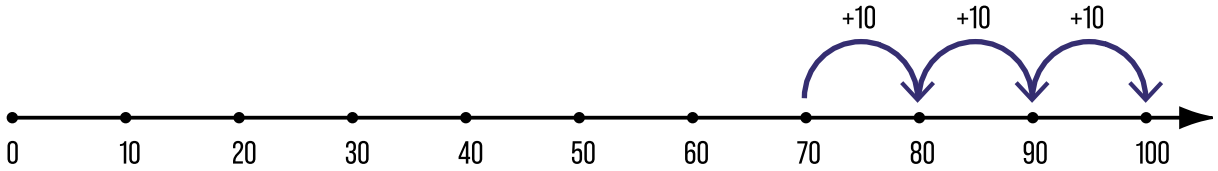
You give the cashier $1, how much money will she give you back?

I know that the $1 coin has the same value as 100¢. I estimate that she should give me back about 30¢, because 68 is close to 70, and 30 more equals 100.

Since the 1¢ coin is no longer issued, the 68¢ must be rounded to the closest 5¢, that is 70¢.

I use the number line to represent the change to be given.

I start at 70 and jump by 10's to get to 100. I jump three 10's, which is 30.



The cashier will give me 30¢ back. Here are some of the choices the cashier has to give me the money.

or

or

Estimating and Calculating the Cost of Transactions Involving Multiple Items (Without Tax)

In the early junior grades, students build on prior knowledge to estimate and calculate transactions involving multiple items with dollar values, excluding sales tax. Estimating and calculating the costs of cash transactions requires the application of addition, subtraction, and mental math strategies, as well as a good knowledge of math facts.

When purchasing multiple items, students round up the price of each item and then add them up to get a general idea of what the transaction will cost.

Students then compare their estimation of the transaction with the exact cost. In this way, they can check whether their answer is plausible.

For more information on estimating and rounding, see Estimating and Calculating Change.

A culturally relevant and responsive environment helps develop an understanding of how money is used in everyday life.

Educators are encouraged to provide multiple opportunities for students to apply mental math in realistic learning situations, which develops their ability to recall math facts and strengthens their knowledge and understanding of operations. These opportunities provide a meaningful context in which students apply mental math strategies to significantly improve the efficiency and accuracy of their calculations.

Here is an example of a scenario.

Hamzah is making a list of gym equipment with her classmates. They need to find five play items that students use at recess. Their teacher has given them a budget of $300. In searching, these students found a basketball for $29, jump ropes for $7, a play parachute for $59, a set of flying discs for $54, soccer nets for $89. Did the students spend more or less than the allotted budget?

First, I need to estimate the total cost of the chosen equipment.

I round each price to the nearest 10 and add them up to get my estimation.

$$\begin{aligned} 29 + 7 + 59 + 54 + 89 &\approx 30 + 10 + 60 + 50 + 90 \\ &\approx 190 + 50 \\ &\approx 190 + 10 + 40 \\ &\approx 200 + 40 \\ &\approx 240 \end{aligned}$$

According to my estimation, there should be enough money for all the items.

Now I calculate the actual cost of the transaction using decomposition.

$$\begin{aligned} 29 + 7 + 59 + 54 + 89 &= 20 + 9 + 7 + 50 + 9 + 50 + 4 + 80 + 9 \\ &= 20 + 80 + 50 + 50 + 9 + 9 + 9 + 7 + 4 \\ &= 100 + 100 + 27 + 11 \\ &= 200 + 38 \\ &= 238 \end{aligned}$$

The cost of the transaction is $238. If the budget is $300, there is enough money to buy all the items on the list and there will be money left over.

I can calculate the change to be given using mental math.

I know that 300 minus 200 is 100. Then I know that 100 - 30 is 70. Finally, I subtract 8 from 70, which gives me 62.

$$\begin{aligned} 300 - 238 &= ? \\ 300 - 200 &= 100 \\ 100 - 30 &= 70 \\ 70 - 8 &= 62 \end{aligned}$$

238

There is $62 left in the budget. Students could find another item under $62.

Estimating and Calculating the Cost of Transactions Involving Multiple Items (With Tax)

In the junior division, students deepen their understanding of how to link the strategy of rounding decimals to more accurate estimations of the value of purchased items priced in dollars and cents. Students build on prior knowledge, but specifically on the choice to round a number to the nearest tenth, one, ten, hundred, or thousand in the context of financial literacy. Students also make connections to the concept of place value.

Note that it is important to review estimation with students before asking them to calculate transaction costs. It is easy to assume that students know how to estimate, however, teaching them estimation strategies will not only help them to estimate, but also to know if their answers are reasonable when performing calculations.

Realistic learning contexts provide opportunities for students to practice using strategies to accurately calculate money amounts to the nearest cent (decimal numbers to hundredths).

Estimating and calculating costs and change in cash transactions requires the application of addition, subtraction, multiplication, division, mental math strategies, and knowledge of math facts, as illustrated in the previous section.

These types of problems support students' learning in the Number strand, specifically in developing strategies in multi-step problems involving whole numbers and decimal numbers, and in checking the reasonableness of calculations. Students also strengthen their understanding of fractional representation as percents, describing relationships and representing equivalencies between fractions, decimal numbers up to hundredths, and percents in a variety of contexts.

In the junior division, students will eventually add the sales tax to their total purchase. Although students have been working with fractions and proportion problems since the primary division, the calculation of the Harmonized Sales Tax is a concept that will need to be further explained to them.

The Harmonized Sales Tax (HST) is a value-added tax levied on most goods and services sold for domestic consumption. The HST is collected at the time of sale, but is remitted to the government by the businesses that sell the goods and services. The HST rate is 13%, which is equivalent to $\frac{13}{100}$. This means that $13 is charged for every $100 of goods or services.

One way to estimate sales tax is to break it down. A common benchmark percentage is 10%. Students can determine 10% of an amount of money. Then, students can find half of 10%, or 5%, by dividing their answer in half. By adding the two numbers together, students can estimate that the HST will be slightly less than their result.

For example, to estimate the 13% HST on $88, I take $88 and round up the HST to 15%. I break 15% down into 10% and 5%. 10% is one-tenth, so one-tenth of $88 is $8.80. 5% of $88 is half of $8.80, or $4.40. I add these two amounts together.

$$\$8.80 + \$4.40 = \$13.20$$

I estimate that the HST on $88 is just under $13.

Here is a scenario.

Georgina is starting her own business making reusable vegetable bags because she wants to do something positive for the environment by reducing the use of plastic. Her family thinks this is a great idea. Her family suggests that she contacts her aunt, who owns a sewing store, to get the materials she needs to make her bags. She has finished her list and needs to buy fabric for $97.99, string for $49.99, a sewing machine for $203.99, and thread for $47.50. She remembers that she also needs to include the HST. What is the total cost of her transaction?

First of all, I round the price of each item to the nearest dollar or ten:

- fabric at $97.99 ≈ $100
- string at $49.99 ≈ $50
- $203.99 sewing machine ≈ $200
- thread at $47.50 ≈ $50.

I add up the rounded prices of the items:

$$\$100 + \$50 + \$200 + \$50$$
$$\$300 + \$100$$
$$\$400$$

I estimate the cost of the materials for the reusable produce bags to be approximately $400. To estimate the 13% HST amount, I round up the HST to 15% of $400. I break 15% down into 10% and 5%. 10% is one-tenth, so one-tenth of $400 is $40. 5% of $400 is half of $40, or $20.

$40 + $20 = $60

I estimate that the HST for the reusable produce bag material is $60. I add that to $400, which comes to $460.

I estimate that the materials for the reusable vegetable bags including HST will cost just under $460.

Now I calculate the actual cost of the material. Since most of the prices end in $0.99, I decide to add one cent to the first three prices to get to the next dollar. I must remember to subtract that $0.03 at the end of my calculations.

Cost of the material

- fabric: $97.99 $\longrightarrow$ $98
- string: $49.99 $\longrightarrow$ $50
- sewing machine: $203.99 $\longrightarrow$ $204
- thread: $47.50

$$\$98 + \$50 + \$204 + \$47.50$$
$$\$302 + \$97.50$$
$$\$399.50$$

Now I have to subtract the three cents I added at the beginning.

$$\$399.50 - \$0.03 = \$399.47$$

The cost of the material for the reusable vegetable bags is $399.47, to which I have to add 13% for HST.

I use my calculator to calculate 13% of $399.47.

$$\$399.47 \times 13\% = \$51.93$$
$$\$399.47 + \$51.93 = \$451.40$$

The total cost of the material is $451.40. Since she is paying electronically, she will pay the correct amount of $451.40.

Mathematical Concepts

During discussions about transactions, students can make numerous connections to mathematical concepts found in other strands, such as:

- Simulated transactions contextualize a wide variety of operations, such as:
  - addition when purchasing multiple items;
  - multiplication when calculating the sales tax;
  - addition or subtraction when calculating the change to be given.
- The calculation of sales taxes can be done using decimal numbers or percents, reinforcing the relationship between these two number representations.
- When estimating the total cost of a purchase, the student will need to determine the appropriate strategy for rounding and adding up indidvidual item values (for example, to the nearest dollar for smaller amounts, to the nearest hundred dollars for larger amounts).
- Graphical representations could accompany the various transaction scenarios under consideration. For example, a bar graph could demonstrate the value of items according to categories.

Methods of Payment

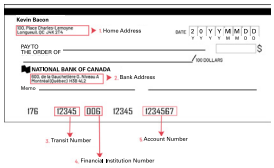
Identifying Various Methods of Payment That Can be Used to Purchase Goods and Pay for Services and Their Advantages and Disadvantages

Beginning in the junior division, students learn about the different methods of payment they can use to purchase various goods and services. A method of payment is the means by which a payment is made.

By considering the advantages and disadvantages of each option in relation to the situation, students develop the ability to make informed decisions.

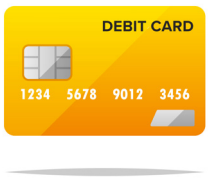
METHODS OF PAYMENT TO PURCHASE GOODS AND PAY FOR SERVICES

METHOD OF PAYMENT	DESCRIPTION AND REQUIREMENTS FOR USING THIS METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Cash 	It is money in the form of bills or coins that is immediately available to buy goods or pay for services.	• Cash is accepted everywhere. • There is no charge for using cash. • The use of cash allows for better management of expenses. • A person of any age can have cash and use it.	• Cash can easily be lost or stolen. • It can be more difficult to make an expensive purchase with cash, such as buying a car.

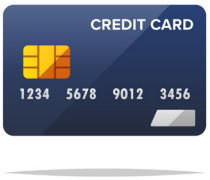
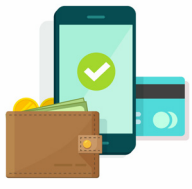
METHOD OF PAYMENT	DESCRIPTION AND REQUIREMENTS FOR USING THIS METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Cheque  	It is a paper document that instructs a financial institution to pay a certain amount of money from the person who holds the bank account to the person or institution named on the cheque (payee). The cheque is taken to the bank – or deposited electronically – for the transfer of cash to the payee for a purchased item. There may be a delay of a few days for the transaction to be finalized. In order to have and use personal cheques, you must have an account at a financial institution. Once you have a chequing account, you can order cheques. You will find the following information on most Canadian cheques: • a personal address • the address of the bank branch • the transit number (or identification number) • the institution number • the account or folio number • the name of the payee • the date • the amount of the cheque written in words and numbers • a signature	• Easier to use than carrying cash. • The cheque contains certain relevant information about the person issuing it as well as the name of the payee.	• A person does not necessarily always carry cheques. • Enough money in the chequing account has to be available before writing a cheque. • A cheque is easy to lose. • It takes a few days before it is validated.

METHOD OF PAYMENT	DESCRIPTION AND REQUIREMENTS FOR USING THIS METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
	When you write a cheque to another person or business, you need to make sure you have the money in your bank account. A cheque is considered cash that you already have. A person may use a cheque because they are paying a large amount of money and do not want to carry a large amount of cash. You make a cheque out to the payee by writing their name on the cheque. You must be careful because if you don't write anything down and the cheque is lost or stolen, someone can write their name on the cheque and deposit it into their own bank account. A cheque is also useful for paying others on a regular basis. For example, when paying rent every month. When you write a cheque, you must put the date on the cheque. You can write post-dated cheques, which means that the date you put on the cheque is the date from which it can be cashed. In Canada, a personal cheque is considered stale-dated 6 months after the date it was issued, and is not valid, unless it is a certified or government cheque. When using cheques, you must pay special attention to how you account for them. This means you must make sure that the exact amount you want to transfer to the payee(s) is correct. You must also keep track of them so that you have a current bank balance. If your payee withdraws more money than you have in your bank account, you will have to pay additional fees.[17].		

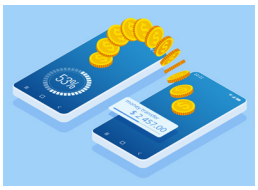
17 Source: adapted from Paying by cheque, Government of Canada.

METHOD OF PAYMENT	DESCRIPTION AND REQUIREMENTS FOR USING THIS METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Barter/Trade  	Barter is when two people exchange goods or services without using money. If you don't have the money to pay for a good or service, you can offer a trade for another good or service. For example, one person mows their lawn as well as their neighbour's in the summer, then the neighbour reciprocates by plowing both driveways in the winter.	It is useful for a person who does not have money to be able to trade a good for another good or service, or a service for another service.	• It may not always be possible to provide the service when the other person needs it. • It is sometimes difficult to reach a consensus on the terms of the barter.
Debit card 	It is a payment card that withdraws money directly from the bank account to which it is linked. Most retail stores accept debit cards, which makes shopping easy and convenient. As with all methods of payment, you should carefully record your purchases and debit card use. Debit cards are safe to use, but there are instances where you may be vulnerable to theft. Protecting your Personal Identification Number (PIN) is especially important. Change it regularly and use discretion when using it in public[18].	• Can be used for online and in-store shopping almost anywhere. • These cards are secured with a PIN. • It is possible to know exactly how much money you can spend.	• Some banks have user fees or limit the use of a debit card. • If lost, a malicious person can make purchases using contactless payment. • Some institutions allow a spending limit to be set to keep your account safe should your card be lost or stolen.

18 Source: adapted from Opening a bank account, Government of Canada.

METHOD OF PAYMENT	DESCRIPTION AND REQUIREMENTS FOR USING THIS METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Credit card 	A credit card is a card issued by a financial institution that allows you to borrow money on a short-term basis to purchase goods and services. Institutions that issue credit cards charge interest if their customers do not pay the loan by the agreed-upon deadline. Some credit cards come with fees, such as an annual fee. Some credit card issuers offer rewards for purchases made with the card. All transactions are recorded and a single statement is sent on the same date each month showing the total amount to be repaid. Students need to understand that credit does not give them more money to spend. The money to pay off a credit card should be part of their budget. **Note:** Age Restrictions At the age of majority, which is 18 in Ontario, a person can have their own credit card without an adult co-signer[19].	• It is possible to make purchases even without having the necessary funds at the time of the transaction. • If used properly, it is possible to establish good credit. • Some credit cards offer rewards, such as cash back. • Convenient, especially for online and for large purchases.	• High interest rates when the statement balance is not paid on time means you are paying more for your purchases and services. • Some credit cards have an annual fee. • Debt problems may arise from the inability to pay back what is owed on time.
Gift card 	It is a magnetic or smart card issued by a business and holds a specific value or amount which can be used to purchase goods or services from that business. Gift cards are provided when payment is made before an actual item is selected or purchased. Businesses have immediate access to the money before releasing the inventory.	• Good substitute for cash or credit cards. • Can help control expenses.	• Can only be used at the designated business. • An inactivity fee may be charged.
Electronic wallet 	It is an electronic device (for example, smartphone or smartwatch) that can be attached to a bank account and allows payments to be made directly at the terminal.	• Online payments are fast and efficient. • Easy to use. • Less risk of theft.	• Not all businesses accept it. • If you lose your device, you lose your method of payment.

19 Source: adapted from How credit cards work, Government of Canada.

METHOD OF PAYMENT	DESCRIPTION AND REQUIREMENTS FOR USING THIS METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Electronic transfer 	It is a banking service that allows the transfer of funds between accounts affiliated with participating financial institutions via email or online banking. **Note:** There are sometimes fees associated with using electronic transfers.	• Electronic funds transfers are automated and therefore have low administrative costs. • The details of each transfer are tracked and recorded. • Transferring funds electronically provides added security and protection. • Recurring electronic funds transfers can be set up to send money on a regular basis. • There is no need to handle and deliver physical documents or cash.	• Some electronic funds transfers can take up to four days to process. • If a transfer is returned or refused, financial institutions do not attempt to reprocess it. • Electronic funds transfers are subject to scams and there is limited recourse to recover losses. • Fees can sometimes be high.

METHOD OF PAYMENT	DESCRIPTION AND REQUIREMENTS FOR USING THIS METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Cryptocurrency 	It is virtual or digital money that is secured by cryptographic processes.	• Cryptocurrency is a recent (2010) banking system, with fewer laws, policies and procedures to facilitate monetary transactions. • Direct monetary transactions between two parties means a faster and cheaper transaction.	• Recovering funds from a fraud situation becomes difficult, given the lack of regulation for cryptocurrency. • Transactions can be made anonymously, which also means more risk, as you could be trading with a dishonest person. • The price of cryptocurrencies is volatile, as they are traded publicly without much regulation. • Cryptocurrency trading consumes a lot of energy, which can have a negative impact on the environment.

Sources:
adapted from Advantages and Disadvantages of Various Methods of Payment.
adapted from Payment methods, Best practices guide.
adapted from En avant, les maths!, 4e année, CM, Littératie financière, p. 2.
adapted from Money and Finances F1.1 - Methods of Payment.
adapted from Cryptocurrency Explained With Pros and Cons for Investment.
adapted from Guide to Electronic Funds Transfers.

Depending on the student's situation and preferences, the idea of the best method of payment may differ in each case. By learning about the different methods of payment people use to purchase goods and services, the student will be able to develop consumer awareness and understand the factors that influence the choice of method of payment.

It is critical to be aware of our own position as educators. We need to regularly reflect on our preconceptions about the finances of those around us. We can reflect on our responses to questions such as, "Does the general population have access to all methods of payment?"

There are many reasons someone might not have access to all methods of payment. For example, people may have credit restrictions or may feel that payments must be made in cash. As educators, we need to consider the complexity and diversity of students' realities.

Students can use the questions below to assess which methods of payment would be appropriate.

- What method of payment does the business accept?
- What method of payment is convenient?
- Which method of payment is safe (secure)?
- What method of payment is available to me?

In order for students to consider the advantages and disadvantages of different methods of payment, we must first discuss why some methods of payment might be more readily available than others. The use of scenarios allows educators to address these key concepts in a way that permits students to explore financial literacy without feeling the need to share personal and private information. Scenarios also help to address and respond to a variety of equity issues related to the diverse circumstances and experiences of students and their families.

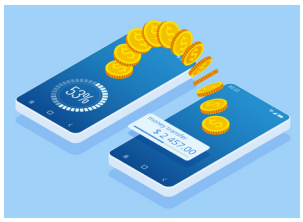
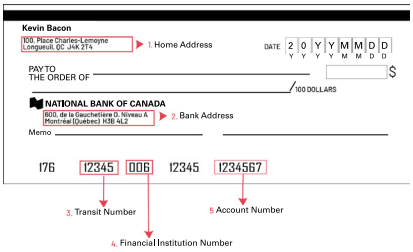
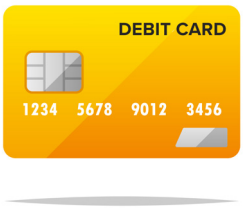
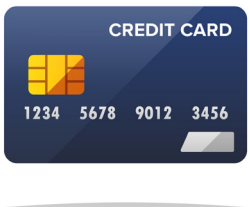
Describing Different Ways to Transfer Money

Students will learn about and describe different ways to transfer money between people, organizations, or businesses.

Methods of transferring funds may be appropriate for some individuals, businesses, and organizations, but not for others, depending on a variety of factors. It is essential to be aware of our own position as educators. We must consider the complexity of students' family situations.

DESCRIBING DIFFERENT WAYS TO TRANSFER MONEY

METHOD OF PAYMENT	PEOPLE, ORGANIZATIONS AND BUSINESSES
Cash 	People, organizations and businesses use cash because it is accepted just about everywhere.

METHOD OF PAYMENT	PEOPLE, ORGANIZATIONS AND BUSINESSES
Electronic transfer  **Gift card**  **Cheque**  	Electronic transfers, gift cards and cheques can be used to send money to family members who live far away. When the payer and the payee are in the same country, it is easy to use any of these methods of payment. Organizations and businesses can also use electronic transfers, gift cards, and cheques to make fast and secure payments. Electronic transfers can be automated, meaning that a withdrawal can be scheduled to occur on a certain day, week or month, allowing for the standardization and organization of payments or transactions to and from customers or businesses and organizations. When a company issues gift cards, they guarantee the value of that card for the purchase of their goods and services.
Debit card  	Organizations and businesses must pay a fee to access payments intended for them from debit card transfers. Interac is the Canadian company that facilitates payments between customers, organizations and businesses.
Credit card  	Credit cards were available to people before debit cards were even available. Credit cards are generally used to make larger payments that may not be allowed due to debit card transaction limit restrictions. Organizations and businesses are required to pay fees to facilitate transactions between themselves and customers. The availability of credit cards as a method of payment, however, facilitates transactions and can help expedite payments in an organized and secure manner, so the fees are an acceptable cost.

METHOD OF PAYMENT	PEOPLE, ORGANIZATIONS AND BUSINESSES
Cryptocurrency 	Individuals, organizations and businesses could use cryptocurrency to have more diversified investments.

Mathematical Concepts

During discussions about methods of payment, students can make numerous connections to mathematical concepts found in other strands, such as:

- Costs associated with various methods of payment could be explored with ratios (for example, credit card interest) or rates (for example, amount to be paid per transaction).
- Some methods of payment allow for better financial management than others because they encourage us to keep track of the activity in our account. This documentation could be charted to better visualize the amounts spent or transferred.

Foreign Currencies

Identifying and Comparing Exchange Rates, and Converting Foreign Currencies to Canadian Dollars and Vice Versa.

The exchange rate is the number of units of a foreign currency that can be purchased with one unit of your home currency. In order to determine an exchange rate, one must understand the concept that countries have their own currency.

Foreign currency is obtained by converting it according to the exchange rate and then purchasing it with Canadian dollars. The price or value of the Canadian dollar is set by the international market and is determined by the demand for Canadian goods and services. The exchange rate fluctuates on a daily basis and banking tools are available online, such as the Bank of Canada's website.

The mechanism of exchange rates is an abstract concept, which can be difficult to learn, so it is useful to present several examples using current currency conversion rates and discuss the daily fluctuation in currency values.

In order to determine exchange rates, students must be able to understand that for some currencies where the Canadian dollar has a greater value, it will convert to a greater amount, but conversely, when the value of another currency is greater, our conversion of the Canadian dollar into that currency will be to a smaller amount.

Banks provide information on daily exchange rates. Students can consult charts such as the one below to find out how many Canadian dollars they will need to buy another currency.

Here is an example of a financial institution[20]. It shows the country, the currency and the prices at which the bank buys and sells the currency.

Canadian dollar → US dollar

Exchange rate summary		
Low	2023-02-16	0.7441
Average	2023-02-10 – 2023-02-16	0.7474
High	2023-02-13	0.7495

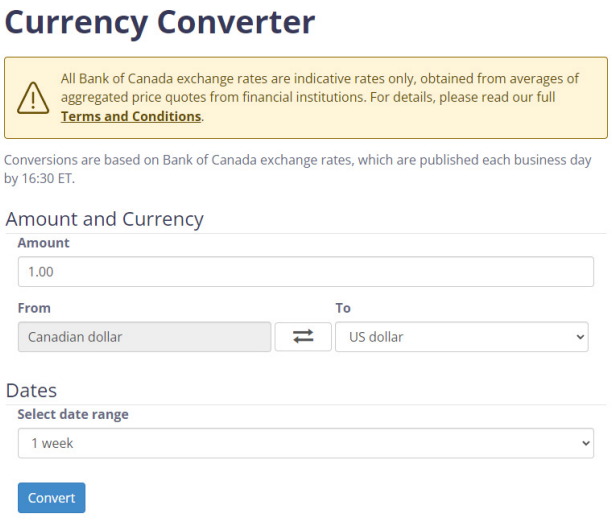
In the Number strand, students represent multiplicative relationships involving rates with whole numbers. A rate describes a multiplicative relationship between two quantities that are expressed in different units.

As students begin to compare Canadian money with money from other countries using an online currency converter or using rates, they gain a greater understanding of the value of the Canadian dollar internationally. To make this comparison, it is important to use the concept of unit rate to compare the two currency values. In the Number strand, junior students have represented equivalent ratios and rates, including unit rate. As they begin to compare the value of one Canadian dollar (CAD) with the value of international currencies, students will use multiplication or division to calculate the amount of Canadian money required to purchase a different currency.

In the intermediate division, students use proportional reasoning in the Number strand. Currency conversion can be said to be a proportional relationship.

Students should note the cost, in Canadian dollars, of purchasing different currencies. Currencies from other countries are not worth the same as the Canadian dollar. Students will note that it will cost more to purchase some currencies than others. There are many reasons why currencies from other countries are worth more or less than the Canadian dollar, such as the economies of the countries, political stability, employment rates and interest rates.

To begin identifying and comparing currencies, students can use the Bank of Canada's currency converter[21] shown below. Please note that exchange rates fluctuate daily.



Students must first determine the quantity of the currency and then its relationship to other quantities.

20 Source: Desjardins. Exchange rate – Currency notes.
21 Source: Currency Converter, Bank of Canada.

For example, on September 7, 2022, if I have $100 Canadian to convert to U.S. currency, how much U.S. currency would I have?

By checking an online currency converter, I know that 1 CAD is worth 0.76 USD.

$$\times 100 \left(\begin{array}{c} 1\ \text{CAD} : 0.76\ \text{USD} \\ 100\ \text{CAD} : \ \ 76\ \text{USD} \end{array}\right) \times 100$$

I would have 76 USD to spend in the United States.

Or, if I want $100, how much will it cost me in Canadian dollars?

By checking an online currency converter, I know that 1 USD is worth 1.31 CAD.

$$\times 100 \left(\begin{array}{c} 1\ \text{USD} : 1.31\ \text{CAD} \\ 100\ \text{USD} : \ 131\ \text{CAD} \end{array}\right) \times 100$$

It will cost me 131 CAD to get 100 USD.

Here are some scenarios:

Example 1

A group is planning a humanitarian trip to two different countries, the Philippines and Vietnam.

a) What are the currencies of the two countries and what is the value of 500 Canadian dollars for each?
b) Which of the currencies will cost more and which will cost less?

a) To find the current exchange rate of the different countries, I use an online currency converter. Here are the exchange rates as of September 7, 2022.

The Philippines - the Philippine Peso (PHP, ₱)

$$\times 500 \left(\begin{array}{c} 1\ \text{CAD} = \ 43.46\ \text{PHP} \\ 500\ \text{CAD} = \ 21\,730\ \text{PHP} \end{array}\right) \times 500$$

Vietnam - the Vietnamese dong (VND, ₫)

$$\times 500 \left(\begin{array}{c} 1\ \text{CAD} = 18\,000.09\ \text{VND} \\ 500\ \text{CAD} = \ 9\,000\,045\ \text{VND} \end{array}\right) \times 500$$

b) Now I need to determine which of the currencies will cost the most and which will cost the least.

The Philippines - the Philippine Peso (PHP, ₱)

1 CAD = 43.46 PHP
? CAD = 1 PHP
1 ÷ 43.46
1 PHP = 0.02 CAD

Vietnam - the Vietnamese dong (VND, ₫)

1 CAD = 18 000.09 VND
? CAD = 1 VND
1 ÷ 18 000.09
1 VND = 0.000056 CAD

The Philippine peso is the most expensive currency and the Vietnamese dong is the least expensive.

Example 2

My parents are planning a trip to India. They definitely want to visit the Taj Mahal. The entrance fee is 1000 rupees (₹). What does that equal in Canadian dollars, if 1 rupee is worth 0.016 CAD?

To find the current exchange rate of the Indian rupee, I use an online currency converter. Here is the exchange rate as of September 7, 2022.

I will use equivalent ratios.

$$\times 1000 \left(\begin{array}{r} 1 \text{ Indian rupee} = 0.016 \text{ CAD} \\ 1000 \text{ Indian rupees} = 16 \text{ CAD} \end{array} \right) \times 1000$$

To visit the Taj Mahal in India, an entrance ticket would cost 16 CAD.

Describing Some of the Advantages and Disadvantages of Various Methods of Payment for Dealing WIth Multiple Currencies and Exchange Rates

Students, having the knowledge of various methods of payment, multiple currencies, and exchange rates, think critically to describe the advantages and disadvantages of each, as they consider different situations.

Methods of payment should be considered before making purchases involving currency conversion. Understanding how to make payments in another country's currency increases knowledge of money concepts.

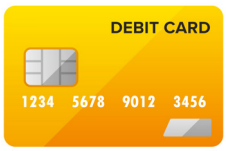
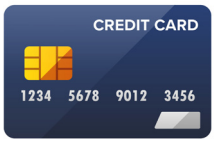
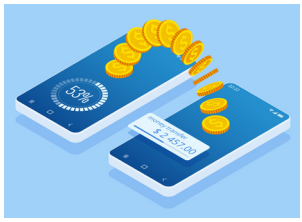
Students use the mathematical processes of reasoning and proving, reflecting, representing, and selecting of tools and strategies to work on their understanding of the most appropriate method of payment for the multiple currency situation.

As students deepen their understanding of how to use different methods of payment to their advantage when purchasing in different currencies, offer the questions below as guidelines:

- Which method of payment allows me to benefit from the lowest exchange rates?
- What costs are associated with using different methods of payment?
- What is the safest way to pay in foreign currency?
- Depending on the purchase I am making, what do I need to consider when choosing the different methods of payment?

ADVANTAGES AND DISADVANTAGES OF VARIOUS METHODS OF PAYMENT FOR FOREIGN CURRENCY PURCHASES

METHODS OF PAYMENT	ADVANTAGES	DISADVANTAGES
Cash  	• Your own bank can probably tell you the lowest exchange rate for converting Canadian currency to other currencies and, similarly, other currencies to Canadian currency. • A more creative way to exchange foreign currencies would be to use a digital marketplace.	Exchange rates fluctuate daily, so there may never be a good time to buy the currency at the lowest rate. You can follow the fluctuation trends or ask your bank for the best time to buy the currency you want.

METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Debit card 	• The rate is set by the bank or financial institution. • Paying by debit card offers the same convenience and benefits as shopping locally at home. **Note:** It is important to contact your bank and determine if your debit card charges foreign transaction fees.	• It is important to know whether or not this method of payment incurs additional charges when the bank calculates the exchange rate for the transaction. • Check the rate set by the bank or financial institution. • Debit cards are not always accepted internationally.
Credit card 	• Credit cards from major companies are accepted in many places around the world. • The credit card automatically calculates the exchange rate. • Some credit cards convert to foreign currencies at no extra charge.	• A conversion fee is charged for most credit cards. • High interest rates, if you don't pay them back on time, mean you pay even more for foreign currency.
Electronic transfer 	• The details of each transfer are tracked and recorded. • Transferring funds electronically provides added security and protection.	• Electronic transfers are subject to scams and there is limited recourse to recover losses. • International money transfers may incur fees from both banks. • The financial institution uses its own exchange rates.
Cryptocurrency 	Cryptocurrency offers the ability to obtain currency from other countries.	By using a digital wallet, you can save and exchange your cryptocurrencies into standard currencies such as the US dollar or the euro. This can be risky, because if you don't know how to perform the exchange calculation, you can easily fall victim to fraud.

METHOD OF PAYMENT	ADVANTAGES	DISADVANTAGES
Gift card 	If your family lives in another country, you can purchase a gift card from that country so that the recipient can spend the money in their currency without having to convert it.	It can be difficult to find international businesses, restaurants or grocery stores online that offer gift cards.

It is important that students have the opportunity to work through different scenarios of foreign currency purchases, and to consider the advantages and disadvantages of different methods of payment.

Let's look at two scenarios that students may encounter involving a foreign currency purchase.

Scenario 1

Students and their families may need to purchase currency to send to their families abroad.

Students should consider the following questions:

- What is the best method of payment to use when sending money abroad?
- Which method of payment will be the most economical?
- What method of payment will ensure that the money reaches the recipient safely?
- What do I need to know about the recipient's ability to receive the money?

Considering all possible methods of payment, electronic transfer is the safest and easiest way to ensure that the family member receives the money.

Students will need to consider how much money the person needs. For example, if the person needs 1000 euros, the student will need to consider the cost of the exchange rate and any additional fees charged for the electronic transfer

Scenario 2

Students are planning a trip to Luxembourg and need to determine the best methods of payment to budget for the trip.

They will need to think about purchasing euros to cover the cost of the trip such as: meals, excursions, hotel, insurance and any other potential purchases.

In this scenario, students may decide to use multiple methods of payment to cover all expenses during the trip.

For example, they may plan to cover some of their costs, such as insurance, by using a credit card, co-signed by their parents or legal guardians. Often, credit cards offer travel insurance with the annual fee. The students may find that the cost of the credit card will cover the cost of the travel insurance.

Students may also have a co-signed credit card with parents or legal guardians to cover emergency expenses and ensure that the credit card balance is sufficient.

Students can contact their local bank and inquire about the cost of using their debit card to access euros while traveling. If the cost of converting funds is optimal, with no additional fees, and knowing that ATMs will readily accept their debit card, students may choose this method of payment so they do not have to carry large amounts of cash.

Students may decide to purchase a small amount of euros to travel with, so that if cash is lost or stolen, it will be a small amount.

Please note that the minimum age to obtain your own credit card in Ontario is 18, but guardians or parents can be co-signers to obtain one. The co-signer agrees to be responsible for any outstanding balance, and any late payments made by the teen will appear on the co-signer's credit history.

Relevant and realistic learning contexts help to build financial and mathematical understanding and skills.

Mathematical Concepts

During discussions about foreign currency, students can make numerous connections to mathematical concepts found in other strands, such as:

- Changing from one currency to another is done using a rate, which varies perpetually.
- The variability of exchange rates makes them excellent tools for visual representations. A broken-line graph, for example, can help visualize if the exchange rate between the Canadian dollar and the euro is out of line.

Theme 2: Financial Management

"Financial education can benefit consumers of all ages and income levels. For young adults just beginning their working lives, it can provide tools for budgeting and saving so that expenses and debt can be kept under control. Financial education can help families acquire the discipline to save for a home of their own and/or for their children's education. It can help older workers ensure that they have enough savings for a comfortable retirement by providing them with the information and skills to make wise investment choices with both their pension plans and any individual savings plans[22]."

Money management can be a tricky and polarizing subject. There is no one "right" way to manage money, which makes learning to manage money flexible but complex. It is important for educators to recognize their own biases about money so that they do not impose their own money management strategy. In addition, it is important to recognize the reality of the students in the classroom in order to present scenarios that are relevant and useful. In order to promote equity, fictional but realistic scenarios can be a good approach so as not to put students in uncomfortable or vulnerable situations if finances are not a topic at home or if the student and family are experiencing difficult financial times; for example, asking them to make a savings plan to purchase a big-ticket item, such as a bike or video game system, could emphasize inequity, while managing a fund for equipment or a trip for the class as a whole puts all students on the same level. Students will have the same experiences and work with the same financial realities, and then transfer their learning to their own lives in a way that meets their needs.

22 Source : Improving Financial Literacy, Analysis of Issues and Policies, OECD, 2005, p. 12-13.

With all of this in mind, it is important to ensure that the class is well prepared and mature before engaging in such discussions, which is why such conversations begin in the junior division.

The Money Cycle and Financial Decision Making

In order to have money to manage, it is important for students to understand how money can move through the economy. The connection between earning, spending, and saving, for example, cannot be overlooked. The student must understand that one day's income will become either another day's spending or saving, and that one person's spending could become another's earning. In order to properly contextualize the vocabulary related to the various ways of managing one's money, educators should use scenarios relevant to students that will make them think about attitudes toward spending and saving.

Income

When we talk about income, we are referring to the various ways of earning money.

Students in the junior and intermediate divisions will have a variety of knowledge related to earning money. Some students may be receiving pocket money. Others may have already begun to do some household chores for their parents, neighbours or others in exchange for money. In some families, discussions about money are quite common, and students will have knowledge about investments or interest payments. In other families, children may not be involved in conversations about money. This variety becomes a richness in terms of financial discussions, as this exchange will bring out different types of income.

Income is money earned as salary, wages, commissions, fees, interest, dividends or annuities.

In addition to facilitating a discussion, a quiz could be conducted on the various types of income with examples. Concrete and relevant examples will ensure that students get the most out of the exercise. Here are some examples of situations and the types of income that would be associated with them:

SITUATION	TYPE OF INCOME
You get a $5 bill in a party card.	Gift
A neighbour gives you $10 for mowing his lawn.	Compensation
You sell pastries for $1 a piece.	Sales revenue
You deposit money in a bank account that earns you a small amount of money per month.	Interest
You buy an item with the intention of reselling it for a profit later.	Investment

This list is not exhaustive, and situations should be modified to be relevant to students; for example, items purchased as an investment could be sports cards or figurines, and income from sales could refer to a school fundraiser. The definitions of the terms could be presented alternately to students who, in turn, would describe representative situations.

It should be noted that some examples of income sources may not be applicable to students' lives. A situation where one receives honoraria, for example, is not very realistic for the junior or intermediate student, since this type of income is reserved for specific professions. This is also true for certain financial products, such as annuities or stocks. In these cases, it is suggested that a discussion be led about scenarios in which these sources of income might be relevant.

Extensions: Income in the form of wages or salary can be very complex. Junior and intermediate students may not be able to analyze a T4 slip, but it would be possible to discuss deductions when wages are earned (for example, Canada Pension Plan, Employment Insurance and income tax deductions). This may open the door to a discussion of the difference between gross and net income and the significance of these two amounts.

Savings

When we keep a portion of our earnings, we say we are saving.

There are many reasons to save, and a discussion of financial goals could be a great entry point to address reasons for saving, as savings is often associated with a financial goal that represents a large expense. That being said, it is important for educators to ask students about savings to expand on the topic; for example, the educators could ask them the following questions:

- Should you save, even if you don't have a large expense planned?

  Sample answer: It is important to save for unexpected expenses or emergencies.

Savings are money set aside for future use.

- Is it absolutely necessary to spend all the money that is not part of a savings plan?
  - Sample answer: No. If there is money left over, it can be added to savings, even if it is more than the planned amount.
  - Sample answer: Yes. Money that is not saved should be spent on daily needs.
- Are there savings strategies that are more or less effective than others?

  Sample answer: Putting money in a money box or piggy bank keeps it handy, but it's not very secure, compared to a savings account which is very secure, but requires more steps to access the funds.

It is very important to direct the conversation so that it does not tend exclusively towards scenarios based on privileged positions. Students will only benefit from the discussion if they feel comfortable and safe.

Investments

Some savings accounts can also be linked to investments.

A debate or discussion could be used to identify the advantages and disadvantages of this type of savings account; for example, a savings account linked to stocks may suffer losses, but could also enjoy much higher gains than the interest rates offered in a typical savings account. This discussion can also lead to the topic of risk management, a key element in financial decision making. There are several questions that could guide the discussion, and it is the responsibility of the educator to provide unbiased information, since risk tolerance varies greatly from person to person. Therefore, there is no "right" answer: the questioning is intended to expose students to a variety of possible scenarios.

An **investment** is an asset purchased for future income or for resale at a higher price to make a profit; for example, investments may include stocks, bonds or real estate.

Sample questions:

- If you were to invest money, would you prefer to invest with the possibility of winning or losing 10% of the amount, or invest with the possibility of winning or losing 25% of the amount? Explain your thinking.
- Would you rather invest money in a product that pays 3% of the total amount each month, or would you prefer a product that pays 1% to 5% of the amount per month? Explain your thinking.

Expenses

An expense is the opposite of income.

The link between income, spending and saving cannot be overlooked, and it is important for the student to understand that one day's income will become another day's spending or saving. Similar to the discussion on savings, a questioning exercise could be done to highlight the reasons for spending money. The following activity will make the student think about the need to spend money and encourage questioning about this decision.

Expenses are made when money is given to acquire goods or services.

Activity
Distribute to students a set of images and a four-box chart like this one:

Immediate need	Short term want
Long term need	Long term want

Students could be given the same images, or a different selection could be given to each student. Each student should place the images in the boxes that represent their perception of the situation.

The beauty of this activity is that the perception from student to student will be different; for example, someone who lives close to school may see a bicycle as a desire, while someone who lives further away or has to get to work will see it as a need. If the activity is carried out during a season when bicycle transport is pleasant, the need could be immediate, whereas if the activity is carried out in the middle of winter, the bicycle remains a need, but the expense is much less urgent. This kind of conversation will not only encourage students to reflect on their own perception of necessary and optional expenses, but will also make them see situations through the eyes of their peers, which helps to develop a sense of empathy. There is then a link with socio-emotional skills in mathematical contexts, namely building relationships and developing self-awareness and a sense of personal identity.

Donations

Ask students to describe the difference between an expense and a donation.

Perhaps the main difference is that the expense is to acquire a good or service, while the donation is offered without getting anything in return. This is a good time to discuss the intangibles that can be received in exchange for a donation. Note that the definition of a donation is not limited to money, but also consists of services or goods. This is an excellent entry point to discuss the community service required for the Ontario Secondary School Diploma. Students could brainstorm places they would like to volunteer their time, or organizations to which they would like to offer their services.

A **donation** to a person or charity can take many forms, including money, services or goods.

Financial Decision Making

As discussed in the section on expenses, there are a large number of influences on financial decision-making. Some of these will help to make more informed financial decisions, while others will lead to less effective financial management.

Spending and saving are closely linked. In the section of this guide on managing and balancing budgets, this connection is detailed. The link between spending and saving can be taught independently of the budget, however, by discussing isolated, less complex scenarios; for example, students may have already received money as a gift and may respond in a variety of ways.

- The student, having seen an advertisement for an item endorsed by a respected personality, goes to the mall to get it.
- The person who gave the gift to the student inquires about the purchase that will be made. The student then seeks to make a purchase without having a specific desire in mind.
- The student has opened a student bank account as a result of a presentation from a local credit union at school. The money is deposited into their account and is earning interest.
- Having taken advantage of the activities organized by the community cultural centre, the student contributes to a fundraiser to improve the centre.

There are no right or wrong ways to manage money in this list; it all depends on the influences on the student. It is important for educators to approach this topic with sensitivity and not necessarily categorize spending or saving as "good" or "bad" decisions. It is impossible to know the financial situation or money management philosophy of parents or legal guardians, or recent spending by students' families. Viewing a purchase as a "bad" decision (for example, buying an expensive electronic device) may cause the student to feel guilt or remorse.

The following are examples of influences on financial management, and examples of their positive and negative impacts. This list is not exhaustive. It is important that students recognize examples that are relevant to them.

INFLUENCE	EXAMPLE OF A POSITIVE IMPACT	EXAMPLE OF A NEGATIVE IMPACT
Social media, advertising, consumerism and peer pressure	A personality on social media shares a detailed review of an item, informing us before we make purchase.	A celebrity endorses a product for his or her own financial gain, leading to a false impression about the quality of the item or need to make the purchase.
Social movements and personal convictions	A campaign to raise awareness about modern slavery makes people decide to buy products from responsible and fair trade sources.	The use of certain high-end products related to one's personal convictions could result in significant expenses, even though comparable cheaper products exist.
An emergency situation (job loss, repairs, recession)	As difficult as it is to see the positive side of such a situation, emergency spending requires budgeting to identify expenses that are unnecessary or redundant. It may also develop the habit of saving a portion of your income.	An unexpected expense may force the individual to use expensive financial products, which increases the total value of the expense. Experiencing a difficult financial situation may cause expenses to become a source of stress, even if the current financial situation has improved.

INFLUENCE	EXAMPLE OF A POSITIVE IMPACT	EXAMPLE OF A NEGATIVE IMPACT
Health, family and personal context	Categorizing health, hygiene and family wellness expenses as needs creates financial priorities that will have a positive impact.	Family circumstances could preclude, for example, part-time employment if, for the well-being of the family, the student is required to be present and available for siblings.

There are also scenarios where there are no positive outcomes. Systemic oppression, for example, can result in an entire group of individuals not having equal opportunities to obtain education or employment and earn wages. This oppression, also known as *discrimination*, reduces or prevents access to certain opportunities based on gender, race, sexual orientation, age, disability, or any other characteristic that categorizes individuals. This is a difficult topic to discuss, but important to address, as awareness of systemic oppression is a first step toward addressing it.

There are many resources for learning about systemic oppression, including the Statistics Canada website, which collects and analyzes data from a variety of sources. Again, the goal of such a discussion is to acknowledge the existence of systemic oppression, not to instill guilt in students. The educator needs to know the students in his or her classroom and guide the conversation based on professional judgment.

Mathematical Concepts

During discussions about the various ways money is distributed in the economy, students can make numerous connections to mathematical concepts found in other strands, such as:

- Returns on investments can be expressed as rates, and students can practice using percents to represent a rate and calculate the return on investment.
- Amounts of money that represent a salary or that represent a large purchase can be difficult to understand. Students can use base 10 materials or other manipulatives to represent and compare a variety of money amounts.
- Financial professionals often use probabilities to determine the value of an investment at maturity. Students will be able to interpret and compare probabilities of final investment value to make the choice that best meets their risk tolerance.
- The interpretation of salary data can be done using an electronic spreadsheet to create a variety of charts and visual representations.

Financial Goals

Managing finances is not just about being able to afford the expenses that are essential to health, safety and well-being; it is also a way to allow yourself to work towards financial goals, no matter what the associated value.

When discussing financial goals with students, it is important not to let one's own beliefs and biases influence the tone or direction of the discussion. Perceptions of the value of money can differ from family to family, from individual to individual, and may also have social and cultural implications, so it is important to allow students to share their truths about the financial goals they might have or imagine themselves having.

A financial goal is not necessarily the purchase of a physical object. The financial goal could be to save for an experience (a trip, an excursion, a concert, etc.), to make a donation to an organization that inspires us, or even to save a sum of money per month in order to have a safety net in case we have to face an unexpected expense.

Planning for and Reaching a Financial Goal

In teaching, it is important to establish clear learning goals and success criteria that are well understood by students. This allows the student to focus on the expectations of the task at hand. Similarly, having a clear financial goal can help us make decisions about money and ensure that spending is well thought out.

Educators should introduce students to a variety of financial goals, which can be categorized by type of goal (an amount to be saved, a purchase, personal income), time frame (immediate, short-term, and long-term), or even the people or organizations that might be involved in achieving the goal (the individual, family, charities, community, etc.).

It may be difficult for the student to determine a financial goal, especially if they have little or no experience with money. In order to respect and value differences in students' comfort with money management, a fictional scenario is useful and preferable. A scenario that focuses on the interests of the class group could also support the collective implementation of a plan to achieve the goal.

Some examples of financial goals relevant to students are grouped in the following table.

TYPE OF FINANCIAL GOAL	TIMELINE		
	IMMEDIATE	SHORT-TERM	LONG-TERM
Individual	Have a summer job at minimum wage, 15 hours per week.	Save half of all the money received as gifts this year.	Set aside $1000 a year for post-secondary plans.
Classroom	Organize an activity that will raise funds for the local food bank.	Seek sponsors during the year to finance the publication of a yearbook.	Plan to fund the creation and maintenance of a community garden through fundraising and grant applications.
Community	Increase the registration fee for a sports team to purchase new equipment at the beginning of the season.	Set aside a portion of the community youth centre's dues until savings are available to pay for renovations.	Seek sponsors in the community and organize fundraisers to take part in a humanitarian trip internationally.

This table is not exhaustive; by presenting a version of this table with only the headings, it could be very interesting to see what examples the students will think of. An exchange of ideas could follow this exercise, which could be done individually, in pairs, or in small groups (or a combination of all three at different times in the process). The class could select a scenario to work on, or the scenarios can be posted for students to choose which one to plan.

Planning, or how to achieve the financial goal, can be done using budgets. The complexity of the budgets should be commensurate with the students' level of knowledge. For more information, see Managing Budgets, Large and Small, starting with simple budgets. Several factors can also affect the path to achieving a financial goal.

Identifying Various Reliable Sources of Information

There is no one "right" way to manage your finances, but you can find a multitude of approaches to financial management, each of which claims to be "the" magic formula. This leads to some important findings.

- Educators need to introduce students to approaches that differ from their own financial management strategies in order to respect the personal, social, family and cultural differences of students in the class. It is therefore important for educators to recognize the biases and potential for privilege that may influence financial decisions.
- Students need to learn to recognize the elements of a reliable source in order to conduct their own research when making financial decisions. It is important to present a variety of sources so that students can consolidate and transfer their learning.

There are several ways to determine whether a source is reliable or unreliable. The following are examples of criteria that can be used to test the reliability of financial management resources. These criteria or variations can also be applied to sources on other topics.

QUESTION	RELIABLE SOURCE	SOURCE OF DOUBTFUL RELIABILITY
Who wrote the content?	• The individual or organization that published the information is clearly indicated. • We can communicate with the individual or the organization. • The individual or organization has a qualification or experience in the field that the source addresses.	• The source is anonymous. • No contact information is visible. • The qualifications of the individuals involved in the writing are not mentioned, are invalid or are not relevant.
Does the source contain advertisements? **Is the source trying to sell a product?**	• The information is shared free of charge. • The intent of the publication is to inform the public. • Advertisements on the website are for the organization that published the information. • The individual or organization does not request payment to access the information. • There is no pressure to make a purchase if it is a paid service.	• Advertisements on the website are for products and services that are not related to the subject matter. • You have to pay or share personal information to access the most relevant information. • The intent of the publication is to sell a product or service. • There are time limits and pressure to buy a product or service.
Is the information presented of good quality?	• The source presents facts supported by research and statistics. • The quality of the language is excellent. • Information is presented in a neutral manner. The elements of risk and possible outcomes are clear and reasonable.	• The source presents opinions (for example, "I" statements). • The source presents only testimonials that cannot be verified. • Spelling and grammar errors are common. • The information is biased and includes extreme statements and promises.
Is the information presented verifiable elsewhere?	• The information presented can be found on other websites of financial institutions, governments, and on websites of financial specialists. • An Internet search on the reliability of the source gives positive results.	• The information on the website cannot be confirmed by other sources. • The source indicates that the information it contains is "secret". • An Internet search on the reliability of the source gives negative results.

This table includes several important elements in determining the trustworthiness of a source, but is not exhaustive; for example, the trustworthiness of a website could also be verified through the content of the URL, the validity of an SSL certificate, or information obtained from a service such as Google Transparency Report[23].

In the classroom, exploring the reliability of sources can be done in two stages. First, by brainstorming with the class to try to identify some of the elements in the table above. Second, through a group analysis of a "reliable" and an "unreliable" website (the website does not have to be related to financial management to give students the opportunity to transfer their learning to new contexts). Next, students can research examples of websites related to financial management, either individually or in small groups, to find one example of a reliable site and one example of an unreliable site. A class discussion can then build on the criteria for a reliable source by noting what reliable sites have in common.

Extensions: In modern financial reality, there are financial management strategies that can be discussed in both reliable and unreliable sources. Students could first create an infographic on a current financial topic to determine if it is a fact-based approach or fiction. Examples of current topics at the time of this guide include:

- How do the various cryptocurrency systems work?
- What is the real value of the cryptocurrency?
- What determines the value of a non-fungible token ("NFT")?
- How does ad revenue work on social media?
- What are the benefits and risks of microtransactions in a video game?

A search will reveal relevant current topics related to financial management.

Mathematical Concepts

During discussions about financial goals, students can make numerous connections to mathematical concepts found in other strands, such as:

- Some salaries can take the form of growing numeric patterns, which can be modeled using manipulatives. The term number represents the frequency (per day, per hour, etc.) and the term value represents the amount of money given for the work done. Savings over time can also be represented using a similar model.
- Financial goals often require data collection to determine if the plan in place is leading to the goal. Visually representing the data with a graph or creating an infographic explaining the process to achieve the goal could help with understanding.
- Many resources providing financial management advice use central tendency measures to explain or justify their relevance or success rate. A clear understanding of what these measures indicate will help determine the reliability of a source.

23 Source: https://transparencyreport.google.com/?hl=en.

Managing Budgets, Large and Small

When learning about financial management, the effectiveness of a budget should be explored.

A budget is a very effective planning tool that help us to visualize the cycle of money. It is important, however, not to overload the budgets that students will be working with. It can be easy as an adult to see things left out of a budget and want to make it as realistic as possible, but educators need to present budget scenarios that are relevant and realistic to students.

A budget is an estimation or plan of income and expenses over a fixed period of time; for example, many people have a weekly or monthly budget.

The Basic Budget

The basis of any budget is expenses and income over a period of time. Educators should allow the student to explore the effect of expenses and income in isolation. In order to respect the social and cultural differences of the students, a fictional situation is preferable. The purchase of equipment for the school or a fundraiser for a trip or charity are scenarios that could be explored.

An example would be a fundraiser where items are purchased and resold at a higher price. A budget is in its simplest form might be as follows:

ITEM	EXPENDITURE	INCOME
Purchase of ingredients to make pastries	$150	
Purchase of paper to create promotional posters	$15	
Bake sale (day 1)		$300
Bake sale (day 2)		$250
Bake sale (day 3)		$100
TOTAL	**$165**	**$650**
Balance		**$485**

In this sample budget, the expenses and income are clearly shown, and it can be seen that this budget shows a profit of $485.

This simulation uses numbers rounded to the nearest dollar, but during the activity there is no reason why you cannot add a level of complexity by having students search for the best priced ingredients.

The budget can also work in the opposite direction. By setting a financial goal, in this case the total amount to be raised during the fundraiser, students can determine the cost of ingredients and the number of baked goods sold, and then the cost per item needed to reach the goal. A discussion could then follow to determine if the proposed cost is reasonable or not. Possible questions include:

- Are there comparable products available in stores? At what price? Is it comparable to our price?
- Who is our target customer? Why will they choose to spend their money on our products and not elsewhere?
- Are there ways to reduce our expenses to maximize our profits? Where in the budget can we afford such a reduction?

Note that there are a variety of correct answers to these questions. They are springhoards to mathematical conversations.

Extensions: Budgets are also an interesting way to incorporate financial literacy into a STEM activity. By creating a fictional store where the student or team will need to purchase parts for a project, educators add complexity to the task while creating a tangible budget scenario. Some sample activities include:

- The construction of a device to protect an egg requiring the purchase of reused or recycled materials.
- The construction of a structure or bridge requiring the purchase of materials (blocks, spaghetti, etc.) for different mass.
- A robotics competition where the winning team creates the most functional robot at the lowest cost.

Long-Term Budgets

Students will now be able to explore the creation of a budget for a major expense. This expenditure does not have to be a physical object, nor does it have to be an individual purchase - we don't want to promote consumerism. The expense could be, for example, a ticket to a concert, a donation to a charity, a first payment for post-secondary education, equipment for a job, an apprenticeship, or a hobby. Creating a long-term budget requires more inputs and outputs than a basic budget because contingencies are more likely to occur over a longer period of time.

Here is an example of a family budget. However, it is ideal to bring out the elements of the budget in a conversation so that students can take ownership of the content and share their perspectives and knowledge. The richness of the conversation lies in the variety of perspectives in the class group.

Fixed monthly income	$3000
Variable monthly income (tips, gifts, other sources of income)	
Fixed monthly expenses	
Housing	
Internet and cell phone	
Electricity, water, heating	
Transportation	
Food	
Savings*	
Variable monthly expenses	
Hobbies and leisure	
Social activities	
Other expenses	

The student can search the Internet to find approximate amounts for each box in the budget. Educators should not over-set budgets, as students may have different priorities; for example, a student who values a variety of family activities will allocate more money to hobbies and recreation. Again, there is no one way to create a long-term budget.

In addition to monthly expenses, the budget could also include a monthly amount to be saved (shown by an asterisk in the example). Students can use this amount to set aside funds each month for the family to make a major purchase.

Extensions: The family budget is only one type of budget that the student can explore. Other types of budgets will have different elements to consider. For example, the student might:

- Establish a personal budget in which a fixed amount per month is saved for the purchase of a vehicle. The expenses and savings in the budget cannot, however, exceed the income.
- Create a budget for a community non-profit organization, club, committee or sports team. Budgets for such organizations are even more complex than the family budget. For example, there may be donations or grants in the revenue column and salaries to pay in the expense column.

Balancing a Budget

The concept of balancing a budget may seem simple enough, but as demonstrated in the previous section, it is possible to see how monthly expenses can easily exceed monthly income. This can set the stage for a conversation about the cost of living in different parts of the province, country or world.

Educators could offer the students the chance to explore a budget that is not based on a fictional scenario, the goal being to balance the budget. There are a variety of strategies the students can take to achieve balance. The motivations, influences and values of the student will be the basis of the decisions made in the quest for balance. For example, a student who does not want to compromise on non-essential expenses may try to find another source of income. The student might choose to change their lifestyle a bit to reduce some monthly costs instead of slicing out an entire section of the budget. It is important, however, to emphasize the fact that some expenses are essential and more difficult to change than others. For example, someone who chooses to find a new, less expensive place to live should also think about the costs associated with moving.

Using the budgets from the previous section, students could research salaries for specific jobs in their community, and use these as a starting point in planning a personal budget. This activity can also be done randomly, which will ensure that a variety of careers are explored and allow for a more beneficial exchange when students share their findings.

In order not to impose specific careers or jobs on students, educators may also allow the student to choose the career or job within a sector or in relation to a specific challenge. For example, instead of drawing a "lawyer" card, the card could be "career in which you work for social justice and equity," or instead of drawing a "construction worker" card, the card could be "career in which you work to meet housing needs." This approach to career exploration allows the student to explore a variety of careers without limiting themselves.

A **balanced budget** is one in which revenues equal or exceed expenses.

Extensions: In order to make the loop between planning and balancing a budget, types of expenses and financial goals, the educator could develop random situations that will change, for better or worse, the student's budget planning. For example, if we go back to the sample budget items in the previous section of the guide, we see several items that could be affected by random events.

Fixed monthly income
Varied monthly income (tips, gifts, other sources of income)
Fixed monthly expenses
Housing
Internet and cell phone
Electricity, water, heating
Transportation
Food
Savings
Variable monthly expenses
Hobbies and leisure
Social activities
Other expenses

When planning their monthly budget, the student would have to randomly select an event from the following list:

It's the birthday of someone you know. You need to add the value of their gift to your budget (other expenses).	The cost of housing increases by 5%.	You receive a bonus payment from your employer! You must add $500 to the variable income.
You have to pay an extra $50 on your cell phone bill for exceeding your data limit!	2% salary increase!	Necessary purchase of tools or equipment for the job. You must add $500 to other expenses.
You have made an effort to be an eco-citizen by walking to school or work. Your transportation budget allowance is $0.	There are sales at your local grocery store, and your food allowance is reduced by 25%.	You worked overtime! Your monthly income increased by 10%.

The student would then be asked to explain how the event changed his or her approach to planning. For example, the student who had a pay raise might have chosen to add the surplus to savings, or increase the budget allocation to social activities. The student who had an unexpected expense might have chosen not to save that month, or to allocate less money to non-essential expenses.

This list is not exhaustive, and events could also be created by students to make them even more accessible and relevant. To make it even more random, dice could be used to determine values or percents. Some of the situations will require support in interpretation, but this type of activity also allows the student to develop social-emotional skills - specifically identifying sources of stress, stress management, and resilience.

Mathematical Concepts

During discussions about balanced budgets, students can make numerous connections to mathematical concepts found is other strands, such as:

- Balancing a budget requires the addition and subtraction of decimal numbers to hundredths.
- The addition of taxes to a budget requires operations with percents and the representation of rates.
- Balancing a budget requires the use of inequalities to find the amounts that will allow revenues and expenses to balance.
- Budget management in a spreadsheet can involve coding by automating certain calculations or by using conditional instructions to highlight certain remarkable data.

Credit, Debt and Interest

In the previous sections, the majority of the contexts explored involved spending, income and savings. There is, however, the possibility of accessing funds that do not come from income. It is possible to borrow and lend money, in a variety of contexts, to meet expenses that fall into both the want and need categories. It is therefore very important to begin discussions about credit and debt, and the associated costs in the form of interest.

In addition to the ability to borrow money, it is also possible to lend money using a variety of financial products that pay interest.

These two financial possibilities are as much opposites as they are interrelated. Therefore, it is important for the student to have a clear understanding of the benefits and implications of financial decisions with an element of interest.

Credit and Debt

There is no one "right" financial management strategy. This sentence is worth repeating before starting a conversation about credit and debt. Opinions about credit and debt are varied, and personal biases have a huge impact on how credit and debt are perceived (positive or negative, responsible or irresponsible). It is important, then, for the educator to approach this topic tactfully, without directing the conversation exclusively toward one opinion or another.

As a first step, it is important for educators to clarify with students the difference between "accessing" credit and "using" credit. Credit can be a useful and necessary tool in order to achieve financial goals. Educators are encouraged to ask students if there are any circumstances in which using credit would assist in achieving a financial goal.

Credit is the ability to obtain goods and services before paying for them, based on the confidence that payment will be made in the future.

A **debt** is money owed to someone else, such as a person, company, or financial institution.

Sample answers:

- Financial goal: The purchase of a house, an apartment, a condo, trailer, etc. It can be difficult to save the funds needed to purchase a home, especially if one has to pay for a rental unit at the same time. With a little planning to determine how much a person can afford to spend per month, they will be able to set a budget to save for a down payment on a mortgage to purchase a home.
- Financial goal: To have one's own vehicle. A vehicle can be a very large expense. By allocating the monthly amount in one's budget for transportation costs, an individual may be able to purchase a car with a loan if the payments do not exceed the budgeted amount.
- Financial goal: To start a business. By applying for a bank loan to start a business, the initial costs can be defrayed and the loan can be paid back from profits (once the business begins earning a profit).
- Financial goal: To pay for post-secondary education. Putting off a post-secondary education until one has saved the full cost may lead to a longer wait until beginning a career and earning a regular salary. A student loan can provide earlier access to education. Salary earned once working can contribute to the loan repayment.

These examples show that the use of credit can help achieve a financial goal more quickly. The important factor for responsible use of credit is to include paying it back as part of a plan or a budget. Credit can become problematic if there is no such plan.

Several factors can lead to irresponsible use of credit, such as:

- Impulse or emotional purchases that are not related to immediate needs.
- Using a loan for purchases other than the intended purpose.
- Using credit with a very high interest rate (for example, credit cards) without having the funds to pay it back within a short period of time.

To help students understand how credit and interest can affect the final cost of an item, an example such as the one below could be provided. The example uses rounded numbers to make it more accessible to students, but a more complex example can also be used with the help of a spreadsheet.

Example

A loan of $24 000 is given to an individual for the purchase of a vehicle. The loan is to be repaid over a period of 2 years by making one payment per month. The interest rate is 5%.

Without the interest rate, determining the monthly payment is quite simple, as $24 000 must be paid over a 24-month period (2 years), for a total of $1000 per month. However, interest must also be calculated on what is left to be repaid, an amount that decreases each month. An online loan calculator can calculate the interest to be paid for the entire term of the loan, and then spread the amount evenly over all payments.

For this loan, the monthly payment would be $1052.91 and the total interest payable would be $1269.92. This indicates that the car purchased with the loan would cost $25 269.92.

With this information, a conversation could take place about whether or not being able to enjoy the car immediately is worth the extra money. Again, there are no right answers here, as the value of money and ownership of the vehicle will vary depending on personal, family, social, and cultural factors.

Extensions: It is possible, with online loan calculators, to determine how much of each payment will be interest, and how much will be used to reduce the loan balance (principal). For the example above, an online loan calculator can provide the following data:

PAYMENT	LOAN BALANCE (PRINCIPAL)	PAYMENT OF INTEREST	PAYMENT OF CAPITAL
1	$24 000.00	$100.00	952.91
2	$23 047.09	$96.03	956.88
3	$22 090.20	$92.04	960.87
4	$21 129.33	$88.04	964.87
(...)			
24	$1048.54	$4.37	$1048.54

Students can use such a tool and experiment by changing the interest, the length of the loan, or the frequency of payments to see how these affect the total value of the loan. Students could also experiment with a variety of amounts to represent a variety of purchases, for example:

- a house that will be paid for over 25 to 30 years;
- a loan to start a business, which must be paid back in 10 years or less;
- a payment program for a high-end television for which the value is split into 4 to 12 smaller payments;
- payment of a credit card balance over 12 months.

Interest rates for the above scenarios may vary from year to year, the educator can support students in finding appropriate interest rates for each situation.

Simple and Compound Interest

In any situation where interest is involved, there is money lent, and money borrowed, and the person or organization borrowing the money will have to pay interest on top of the original amount borrowed. There is, however, more than one way to calculate interest, each of which has advantages and disadvantages. The following two examples show borrowing and lending situations, and how both calculations of interest can be beneficial.

Example: Simple interest

Borrowing to buy a car: When buying a car with a loan, interest is calculated at the outset and added to the principal amount, and this amount is divided by the number of payments.

For example, if a person borrows $1000 at an annual interest rate of 2% for 5 years, the interest is calculated at the beginning of the loan and divided by the number of payments. The person will spend a total of $1100: $1000 for the return of the original loan and $100 in interest ($1000 × 2% = $20 and $20 × 5 = $100).

Since simple interest does not take into account accrued interest (there is no interest calculated on the interest), simple interest has an advantage over compound interest for the person or organization borrowing the money (if the rates are comparable).

Example: Compound interest

Guaranteed Investment Certificates (GICs): A GIC is a financial product that is like a loan to a financial institution from an individual. The individual agrees not to access a sum of money in exchange for a higher than usual interest rate. The interest is deposited in the current account, contributing to the account balance. This amount is then included in the interest calculation for the next payment. The principal investment and compound interest are paid to the individual at the end of the investment (maturity).

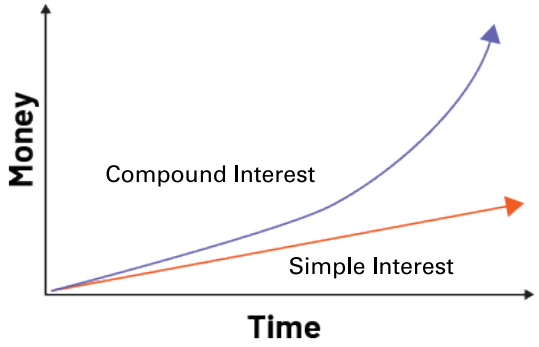
For example, if the individual commits to invest $1000 in a GIC at an annual interest rate of 2% for 5 years, the interest is always calculated from the account balance with accrued interest, each year as shown in the following table:

BALANCE	INTEREST PAID	NEW BALANCE
$1000	$20.00	$1020.00
$1020	$20.40	$1040.40
$1040.40	$20.81	$1061.21
$1061.21	$21.22	$1082.43
$1082.43	$21.65	$1104.08

Since interest is calculated on the interest already paid, compound interest has an advantage over simple interest, for the person lending the money (when comparing two situations where the interest rates are comparable).

These examples could be modeled for the class by projecting or screen-sharing an online interest calculation tool. There are several available. Afterwards, students can use their own financial goals as inspiration to explore the online tools and see the effect of amount, term and interest rate on the value of a loan or investment.

Extensions: Compound interest can be represented by an exponential relationship, as shown in this graph[24] :



Without presenting the actual formula for compound interest, which is still quite complex, using manipulatives or technology tools to create a graph like this one can demonstrate the growth of an investment or the value of a loan using both ways of calculating interest.

24 Source: https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-mathematics/grades/g8-math/strand-f/f1.

Example: Compound interest (exponential relationship)

Example: Simple interest (linear relationship)

Mathematical Concepts

During discussions about credit, debt, and interest, students can make numerous connections to mathematical concepts found in other strands, such as:

- The amounts of money involved in loans for vehicles and housing are great contexts to represent and compare numbers up to $10 000, $100 000, or $1 000 000 depending on the student's situation and grade. Concrete materials or electronic versions of manipulatives can support this learning.
- In the responsible use of credit, not only must the amount and frequency of payment be identified (multiplication and division), but also the additional amount from the interest rate, which is expressed as a percentage.

Theme 3: Consumer and Civic Awareness

Beginning in the junior grades, students begin to explore consumer and civic awarness, as it relates to financial literacy. Students are given the opportunity to reflect on consumer experiences to analyze the consumption and purchase of products from a financial perspective. This section of the curriculum allows educators to address and respond to a range of ethical and fairness issues related to the realities students experience in their daily lives.

Criteria for a Good Purchase

Much of the mathematical content related to financial literacy in the junior and intermediate divisions can be addressed by focusing on the goal of making good financial decisions. Beginning in the junior division, students observe and analyze a variety of real-life situations to identify different criteria that represent a good purchase. Some of the students' preconceived ideas will highlight price as an important aspect.

A good purchase must take into consideration several factors other than price. In order to consider if a purchase makes good financial sense, it is important to determine, first of all, if it is a need or a want. Then, it is necessary to establish criteria to make the right purchase. These criteria, which include price, can also take into consideration the brand, the quality of the product, promotions, where it was made, if it considered to be fair trade, the delivery costs, the return policies and the environmental impact of the packaging. From a financial point of view, it is important to be able to purchase the product outright or to be able to make the necessary payments during a certain period.

Students can also explore and discuss the financial benefits and safe ways to purchase second-hand items. They can research various consignment, second-hand, community, and other stores in their environment and discuss the importance of these stores in terms of the financial and environmental impact.

In addition to unit price, students can also explore other criteria, such as cognitive marketing bias and merchant reputation.

Unit Rates

Students should be able to make price comparisons in order to determine the lowest price. By using mathematical ideas such as proportional reasoning, they can compare the price of a given quantity of the same product sold by different merchants. This mathematical skill will allow the student to limit the influence of the cognitive biases of marketing.

Here is an example of the sale of glue sticks in a retail store.

	RETAIL STORE 1	RETAIL STORE 2	RETAIL STORE 3
Posted price	$3 for 6 glue sticks	$6 for 18 glue sticks	$9 for 24 glue sticks

The student should be able to compare the price, for an equal quantity, to determine the best purchase.

The student can use the unit price by dividing, using a calculator if necessary, each of the two terms in the rate by the second term so that the second term is 1.

	RETAIL STORE 1	RETAIL STORE 2	RETAIL STORE 3
Posted price	÷ 6 $3 for 6 glue sticks	÷ 18 $6 for 18 glue sticks	÷ 24 $9 for 24 glue sticks
Price calculated for 1 glue stick	÷ 6 $\frac{\$3}{6 \text{ sticks}} = \frac{\$0.50}{1 \text{ stick}}$	÷ 18 $\frac{\$6}{18 \text{ sticks}} = \frac{\$0.33}{1 \text{ stick}}$	÷ 24 $\frac{\$9}{24 \text{ sticks}} = \frac{\$0.38}{1 \text{ stick}}$

With a unit price of $0.33/stick, the Retail Store 2 represents a cheaper option than the other two stores.

The student can also use the unit price by dividing the first term by the second term using a calculator if needed.

RETAIL STORE 1	RETAIL STORE 2	RETAIL STORE 3
$\frac{\$3}{6 \text{ sticks}} = \$0.50/\text{stick}$	$\frac{\$6}{18 \text{ sticks}} = \$0.33/\text{stick}$	$\frac{\$9}{24 \text{ sticks}} = \$0.38/\text{stick}$

Again, the price at Retail Store 2 is cheaper. The price for a glue stick, namely the unit price at Retail Store 2, is $0.33/stick.

Marketing Strategies

The marketing strategies used by different companies rely on cognitive biases to promote the sale of a product or service. These cognitive biases are characterized by a framing of the information presented in order to influence people's decision making by dismissing their rational objectivity. Here are some examples of cognitive biases.

- The effect of fashion: the desire to do like the others.
- Groupthink: the desire to be like others.
- The freedom of spirit: the desire to differentiate oneself from others and to distinguish oneself from fashion effects.
- The authority principle: the desire to buy a product that has been recommended by a celebrity or important group (for example, toothpaste and dentists).

Other marketing strategies can influence consumer choices to buy a product or to pay for a service.

Business Reputation

With the emergence of online stores, the increase in big box stores and the decrease in small local businesses, it is becoming increasingly difficult to choose where to buy. The student must be able to compare and analyze different merchants in order to come up with criteria for good purchases.

Criteria for selecting a good business

- Is the business located near me?
- Is the quality of the service good?
- Are the products varied? Are the products in stock?
- Are the delivery times reasonable? Does the business offer different delivery options?
- Are the reviews about this business positive?
- What is the return policy? Does it allow returns or exchanges?

The following is a list of questions that could be used with junior and intermediate students to help them learn more about good shopping practices and experiences.

- How can good service enhance the shopping experience?
- What links can be made between the increase in online shopping and different delivery options?
- What factors prevent some people from making large purchases (for example, appliances) on online shopping websites?
- What is more important to consider when making a purchase, price or quality?
- How is it possible to determine if a price is reasonable?
- Does quality matter if a product is used infrequently?
- How do you determine if an electronic device (for example, a cell phone) should be upgraded?

It should be noted that in some areas of the province, the cost of the same item can vary greatly. The cost varies according to location and population density, but also according to the financial and economic reality of the region. Some large retailers offering discounted prices are not located near small towns, which prevents citizens in these areas from taking advantage of more competitive prices. In addition, some merchants will post higher prices in some areas of the province, because the average salary is a little higher than the provincial average, not taking into consideration the population with modest incomes. In order to establish criteria that will make the discussions objective, it is important to include all the realities of the students in the classroom, and those of the province.

Mathematical Concepts

During discussions about good purchases, students can make numerous connections to mathematical concepts found in other strands, such as:

- Multiplication and division are useful operations when comparing different costing options for a set of items.
- Distance traveled to make a purchase can also be a topic of conversation. For example, a discount offered by a retailer in a nearby city becomes negligible when the cost of gas is taken into account. Distance can also be a factor in connection with delivery costs for online shopping.

Taxes

The concept of taxes and taxation will be an integral part of the student's reality as a member of society. Beginning in the junior grades, students will describe the types of taxes that are collected by various levels of government in Canada and explain how this money is used to provide services.

The student will need to make connections to social studies learning and understand that there are different levels of government (for example municipal, provincial, territorial, federal, band council). Each of these levels imposes taxes and administers services.

GOVERNMENT LEVEL	TAXES COLLECTED	EXAMPLES OF SERVICES OFFERED
Band council	Band councils receive their budgets almost entirely from the federal government. Reserves and municipalities are exempt from property taxes.	• Education system • Cultural development • Development of housing • Application of laws
Municipal	Property tax	• Fire service • Highways (roads) • Application of laws • Hobbies • Garbage collection
Provincial	• Sales tax • Income tax	• Health care system • Education system • Public protection • Correctional facilities • School board management
Federal	• Goods and Services tax • Income tax	• Correctional facilities • Public safety • Protection of the environment

Property tax: This is a tax that requires property owners to pay a sum of money based on criteria established by the municipality.

Income tax: In Ontario, everyone who works must pay income tax. The amount of tax paid varies depending on your salary.

Sales tax: A value is added to the total amount of purchases to fund levels of government. The sales tax in Ontario is 13%, with 8% going to the provincial government and 5% to the federal government. The amount of this tax varies from province to province. Some items, such as baby products and food, are tax free.

Students should compare the services offered by each level of government, as well as the funding provided. They should be able to solve sales tax problems to determine the amount of money that goes to the federal government and the amount that goes to the provincial government.

The following are questions that could be asked of junior and intermediate students to help them learn more about taxes and various government services.

- How do taxes affect a person's monthly and annual salary? Explain your reasoning.
- Why do property taxes depend on the value of a person's property?

Bank Accounts

Bank accounts are not just limited to savings and chequing accounts. There are different options for savings and chequing accounts, as well as investment accounts. In the junior and intermediate divisions, students will learn about the different bank accounts offered by financial institutions, as well as the factors that differentiate them.

Types of Accounts

Throughout the course of their learning, students should analyze situations in which different types of bank accounts must be compared. Students can consult the websites of various financial institutions in their area and find information about savings accounts, chequing accounts and investment accounts. Students will use the information they have learned to establish criteria for choosing an account based on the purpose, the interest rates offered and the fees associated with its use.

Bank accounts can be summarized into three broad categories.

Savings account	A type of account that earns interest on money. This type of account often has a low monthly fee, but a higher user fee for each transaction made.
Chequing account	A type of account that pays very low interest. This type of account often has higher monthly fees and allows for monthly transactions. The number of transactions and fees vary by account type and financial institution.
Investment account	A type of account that earns varying amounts of interest depending on the type of investment. This type of account often has a monthly fee in addition to the transaction fee.

Bank Fees

In order to make objective and informed decisions when selecting an account, the student will need to analyze the different types of fees associated with opening and maintaining the account in question. These fees can be summarized in two categories: monthly fees and transaction fees.

Monthly fee: An expense associated with a bank account that is withdrawn from the account each month. The amount varies depending on the type of account and the amount of money in the account.

Transaction fee: An expense associated with a bank account for each transaction made. For a debit card, this may be associated with a purchase at a retailer or an electronic transfer. For an investment account, this may be associated with the purchase or sale of stocks or exchange traded funds.

Interest

A bank account can also earn interest depending on the amount of money and the type of account. For example, simple interest on a savings account is calculated on the original principal at the end of each period. A person who has $1000 in a bank account with 5% annual interest will receive $50 (that is, 5% of 1000), if the $1000 remains constant in the account for a year.

The following is a list of questions that could be asked of junior students to help them learn more about financial institutions and the accounts offered at each.

- What criteria should a person consider when deciding whether to open a chequing or savings account?
- How can interest rates encourage the opening of a savings account instead of a chequing account?
- Should the entire population have an investment account? Explain your reasoning.
- Why do banks often offer free bank accounts if a minimum balance is maintained in the account? Explain your reasoning by referring to the concept of loans and interest.
- Is it better to have a chequing account with a high monthly fee or a high transaction fee?

Borrowing Money

Whether a student lives in an affluent environment or not, whether he or she lives in an urban area or far from the nearest city, the concept of borrowing and lending is more important than ever. With the cost of living continuing to rise, borrowing may become more and more prevalent in society. Borrowing is no longer just for real estate purchases, but can also be used to purchase cars, furniture, and electronics, for example. The mathematics curriculum opens the door to the exploration of the concept of borrowing, as well as to the factors that influence lending, such as interest.

Types of Loans

Students will be required to complete a detailed analysis of the different types of loans offered by financial institutions and their uses. They will analyze and compare the calculation of interest rates for each type of loan. The student will also make decisions about the best type of loan for given situations.

Note that a loan is not just limited to a mortgage or car loan and or credit cards. Sometimes it is ideal to find other borrowing strategies. For example, a post-secondary education program can be very expensive (for example university tuition, room or apartment rental). Here is a list of loans available in Ontario for students to review and compare.

TYPES OF LOANS

Cash advance	Borrowing money from a credit card. This can be a very expensive way to borrow money. It is recommended that the balance be paid off as soon as possible, as interest is accrued from the date of borrowing to the date of repayment.
Line of credit	Borrowing from a line of credit is an efficient and flexible way to get money for expenses for which a consumer has no savings. The interest on this type of loan is lower than the fees on a credit card.
Mortgage loan	Credit granted to a person or company for the purchase of real estate. The loan may be renewed at a negotiated interest rate set out in the contract and paid according to a defined amortization. The interest associated with a mortgage can be fixed or variable.
Commercial loan	A loan granted to a business for purchases or to start a business. The interest on this type of loan is lower than the fees on a credit card.
Car loan	Credit granted to an individual or company for the purchase of a vehicle. The loan will be established at a negotiated interest rate based on a predefined contract and paid according to a defined amortization.
Student loan	Credit granted to a person for education and obtaining a certificate or degree. The loan must only be repaid at the end of the studies or according to the terms of the contract.

In this part of the curriculum, it will be important for educators to draw parallels between the type of loan and the interest associated with each loan so that students can understand the difference between the options. In the intermediate grades, students will be expected to develop criteria to explain interest rates offered at banking institutions, types of bank accounts, and types of loans. Students will also evaluate various factors that influence their choice, ranging from the value of the interest rate to the type of interest rate (either simple or compound) and the frequency of interest payments. Students will use technological tools, such as online interest calculators, to explain and compare the various possible outcomes and to consolidate their learning.

There are several factors that influence an individual's or organization's ability to obtain a loan from a financial institution. The loan is influenced by the individual's or organization's credit score. This means that an individual or organization with a better credit score will be offered a better interest rate in addition to a higher credit limit (loan).

The factors that influence the credit score are:

- bill payment history;
- the use of credit;
- the opening date of the different accounts;
- new credit applications;
- the number and variety of creditors.

It may be more difficult for a person with a lower income to receive a loan than a person with a higher income (for the same amount of money). Debt ratio, credit score, monthly income, assets, job stability, and place of residence are six factors considered by financial institutions before granting a loan, line of credit, or credit card. These criteria contribute to economic inequality in society. Also, the more debt a person has and pays off, the more likely they will be offered additional credit. Banks want to get paid back. They don't want to offer money to people who are too risky, so this creates even more economic and financial inequality in our society.

The following is a list of questions that could be asked of junior and intermediate students to help them learn more about loans and interest.

- Why is it important for society and financial institutions to create regulations that affect a person's ability to receive loans?
- How can interest rates affect a person's ability to receive and pay for loans?
- Why do some people never pay interest when they use their credit card?
- Why is it recommended to get a credit card early (at a young age)?
- What are the differences between mortgages and lines of credit?

Credit Cards

Misunderstanding interest rates and the differences between credit card and line of credit interest rates are two factors that can lead to debt.

The interest rates associated with credit cards can vary. Most credit cards have interest rates between 20% and 22%, but some may have interest rates as high as 30% or more. Interest is only accrued when the entire balance of an account is not paid off by the due date indicated on the statement, with certain exceptions such as cash advances. A person who always uses his or her credit card and always pays his or her debts on time will not pay interest charges.

However, for a person who does not pay the balance on time, an interest charge will be applied to the amount to be repaid. This fee is most often calculated from the end of the previous period using the interest rate stated in the card agreement. This interest is charged monthly on the unpaid amounts and can add up very quickly and should therefore be limited.

A person wishing to borrow for a purchase should consider a line of credit rather than paying with a credit card, if the amount is substantial and cannot be repaid quickly. A line of credit, unlike a credit card, offers low annual interest rates.

Credit cards vary greatly. Some credit cards are free but offer few benefits, others have an annual fee and offer benefits (travel, rewards, cash back). Many credit cards also offer point rewards for purchases. There is a direct link between the fees associated with using the credit card and the benefits, so it is important for consumers to determine how often they use the card and the rewards and benefits associated with it to determine if it is worthwhile.

Credit cards have advantages and disadvantages (for example, immediate access to funds, convenience, rewards, security, fees, interest, etc.). When choosing a credit card, it's important to make an informed choice and consider all factors.

Note on credit card accessibility

Although credit cards and lines of credit are used by much of the population, it is important to note that some people do not have access to them because credit checks are required. This tool, which allows people to make purchases, receive benefits and increase their credit, can also increase the socio-economic gaps in a population. Several factors can influence a company's refusal to finance an individual's credit, such as:

- A low credit score
- A poor credit history
- The person's financial situation (income, debt and other)

Throughout the course of their learning, students will relate credit card use to the effect on the financial and personal well-being of the user. Students will compare credit cards and learn about fees, interest, and rewards programs.

The following is a list of questions that could be asked of intermediate students to help them learn more about credit cards.

- What are the most important criteria to consider when selecting a credit card? Are they the same for everyone?
- Is it better to have one or more credit cards? Explain your reasoning.
- What links can be made between credit card use and debt?
- How can some credit cards offer cash back? Where does the money come from?
- Why do some businesses not accept certain credit cards?

Promotions, Loyalty and Incentive Programs

As mentioned earlier, several factors should be taken into account to make the best possible purchase. Many companies and businesses have developed loyalty systems and programs to encourage the consumer public to buy from them and even become regular customers.

Companies use various methods to build customer loyalty such as coupons, discounts, paid memberships with special privileges or bonuses reward programs.

Discount Coupon

Following a visit to the Web site or after an online purchase, many companies offer the possibility to subscribe to a newsletter to receive promotions and special offers. These emails often offer coupons and encourage people to make a purchase. These marketing techniques influence decisions and can decrease purchasing power. People are sometimes inclined to buy items that are not very useful and that they might not have intended to buy in the first place.

In addition, many businesses, such as grocery stores, offer coupons in the weekly flyers encouraging people to shop there.

Discounts

Whether it's the promise of free shipping or special sales like "Everything for a dollar" or "We pay the tax", businesses use discounts to lower the price of certain goods.

Paid Programs

Some companies offer a membership program with excellent discounts or savings, but a fee is charged. These programs, while financially beneficial in many cases, tend to create inequities based on who can meet the membership criteria. The purchasing power of the customer who has joined the program is high, but the person who cannot afford to pay a large sum of money at once will not have access to the best prices. These stores often offer bulk sales. The cost per item is lower, but the purchase of these products can create financial stress for a family who, for example, only wants one jar of mustard, but must buy a set of four.

Incentive and Reward Programs

Some businesses offer points based on the amount of money spent. The purpose of these points is to encourage the consumer to shop at that business for rewards. For example, some grocery stores might offer 1 point for every dollar spent and then offer a $10 off coupon for every 1000 points earned. For other businesses, such as shoe stores, a family that buys five pairs of shoes in a year is offered the 6th pair at half price. These programs exist in small local businesses and in large national businesses, whether it's for coffee or appliances. These programs offer significant benefits when customers are satisfied with the service or product offered and want to avoid the hassle of comparing prices from multiple stores.

These various programs and offers can increase the purchasing power of families. It is important to provide students with opportunities to justify their mathematical thinking by making connections between the business offering these types of programs and the items on sale. In the intermediate grades, students will solve problems based on real-life situations and prior knowledge and experience. Students will learn about discounts, loyalty programs, and paid programs that are often offered when purchasing products. Students will also make connections between these different programs and their impact on the purchasing power of people in various financial contexts. Students will develop criteria to determine the advantages and disadvantages of these types of programs, which will be useful in their daily lives.

Note that it will be important to relate the best buy to loyalty and discount programs. Students will learn about the importance of discounts and sales to businesses and make connections between inventory and sales to understand the establishment of discounts and programs.

The following is a list of questions that could be asked of intermediate school students to help them understand more about the different programs offered by companies.

- Why might a business decide to charge a membership fee so that a person can purchase items from it? Are there advantages and disadvantages to the customer?
- Why do businesses put some items on sale? Are there advantages and disadvantages for customers?
- Why can a business afford to offer coupons and discounts on different items?
- How can discounts help a family stay within their budget?

Interest Rates

The concept of an interest rate may seem very simple. It represents a percentage of a capital and is added to that capital. However, in reality, this concept can be very complex to understand and integrate into a budget. Two types of interest rates are available, fixed and variable.

Variable and Fixed Interest Rates

As the name implies, fixed interest rates remain the same throughout the life of the loan, usually 1 to 5 years. Variable interest rates can change depending on the prime interest rate set by the Bank of Canada. Fixed interest rates offer greater stability.

THE FIXED RATE IS SUITABLE IF:	THE VARIABLE RATE IS SUITABLE IF :
• the person prefers fixed monthly payments • there is no room for manoeuvre in the budget • it is likely that the prime rate will increase during the repayment of the loan	• the person can afford an increase in monthly payments • it is likely that the prime rate may drop during the repayment of the loan • unexpected market changes do not cause stress and anxiety to the individual

In addition, the term *interest* is often associated with debt. However, the term is also associated, in a positive way, with investment. Investment is a strategy to make your money work for you. It will be discussed in the next section.

As students learn about interest, they will need to develop criteria for comparing interest rates offered by different financial institutions, different types of bank accounts (see Bank Accounts section) and different types of investments or loans. Various factors will influence choice, ranging from the value of the interest rate to the type of interest rate (either fixed or variable) and the period of the investment or loan (amortization period). Students will use technological tools, such as online interest calculators.

The following is a list of questions that could be asked of intermediate students to help them learn more about interest rates.

- In what situations is it better to get a fixed rate mortgage? Explain your reasoning.
- How does a financial institution determine its interest rate?

Investment

When a person invests money (home purchase, retirement savings plan, education savings plan), the goal is a large return. Students will analyze and discover the effect of interest rates on the total amount of an investment by comparing different interest rates. In addition, they will relate the length of the investment to the total return on the investment using scenarios with different interest rates. Students will learn about and analyze the fluctuation of interest rates in Canada and discuss the effect of this fluctuation on the economic and budgetary situation of families from different socio-economic backgrounds.

In order to learn more about investing, students will learn about situations when interest will be present. Students will research the different investment options and the reasons for borrowing money.

A person can start investing for retirement as early as age 18 in an RRSP or can wait until age 30 to start, depending on their personal and financial situation. Students will compare the total amount borrowed, including principal and interest accumulated over time, and relate the length of the loan and interest rates to the total amount borrowed. Similarly, students will be expected to make this same connection between the amount invested, the total amount in an investment account, and for several investment scenarios.

Investing is a financial strategy that aims to increase the capital in a savings account. This strategy can have short, medium and long-term goals. In Ontario, several investment accounts are available. The most popular investment accounts are :

- Tax-Free Savings Account (TFSA);
- Registered Retirement Savings Plan (RRSP);
- Registered Education Savings Plan (RESP).

Recently, cryptocurrency investment accounts have started to become more and more popular.

Investment accounts are available to the entire population. These accounts can be opened at banks or at a brokerage firm.

Interest represent the price or cost associated with borrowing money. For example, when a person invests money in the stock market, companies listed on the stock market may pay interest in the form of a dividend. Similarly, when a person buys a property and borrows money from the bank in the form of a mortgage, that person will have to pay interest on the loan.

Interest rates fluctuate from day to day, week to week. This fluctuation can affect the total amount to be paid back to the bank. When the interest rate is high, the amount to be repaid will be higher.

Interest can work to the advantage of the investor. A person who decides to invest a sum of money at a young age will have a better return on their investment because it will accumulate interest over many years. For example, if a person decides to put $200, twice a month, into an investment account earning 3% interest for 30 years, the total amount after 30 years would be $252 519. However, if a second person decides to invest $400, twice a month, for 15 years at the same interest, the total amount in the bank account would be $196 709. This is an example of the importance of compounding over time. Smaller sums of money invested over a long time period are better than a large sum of money invested over a short period of time.

The following is a list of questions that could be asked of intermediate students to help them learn more about investing.

- What are the benefits of investing at a young age?
- Why should a parent start investing in a Registered Education Savings Plan for their children, if economic conditions permit?
- Why is high-risk investing not recommended for someone approaching retirement?
- How much money do you think a person needs to have in order to start investing?

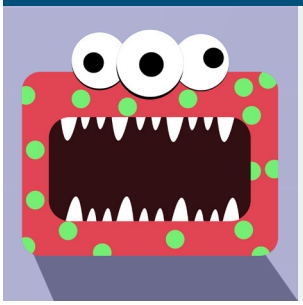
Mathematical Concepts

During discussions about consumer awareness, students can make numerous connections to mathematical concepts found in other strands, such as:

- In any money borrowing and investment situation, interest must be part of the conversation, and a variety of transactions are used in the calculation of interest.
- Interest is represented primarily as percents, allowing students to operate with these as well as to explore the connections between representations of quantities as percents, decimals and fractions.
- Loyalty programs are often ratio-based (for example, a number of points for every dollar spent), which also lends itself well to graphing. Students can also make predictions and estimations of how long it will take to access a reward.
- Forecasts for returns on an investment often use central tendency measures (for example, an investment that gives the shareholder an average return of 5% annually).
- Graphs used in the financial market can be misleading, depending on the duration they represent.
- Consumer awareness can have a direct impact on financial goal setting and budgeting, allowing for contextualization with other financial literacy concepts.

3. WHAT?

Learning Situation – Grade 1



Title : The Monster Box Ate my Coins!
Duration: 50 minutes

Overview

In this learning situation, students learn to recognize Canadian coins by discovering their various physical characteristics as well as their monetary value.

Overall and Specific Expectations

Financial Literacy

F1. Demonstrate an understanding of the value of Canadian currency.

F1.1 Identify the various Canadian coins up to 50¢ and coins and bills up to $50, and compare their values.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning situation, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria, or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals.

It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. In this learning situation, a good time for descriptive feedback is during the Active Learning phase. Students represent different coins using concrete and semi-concrete models to determine their value. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During Review, some solutions may require descriptive feedback from the educator to ensure that the student has the necessary support to revise their thinking to apply to a new context.

Math Conversations

By planning lessons like this, which emphasize collaboration and groupwork, the math conversations are ongoing. These conversations allow students to express themselves and react to the mathematical ideas presented. The role of educators to ask open-ended, thought-provoking questions to stimulate thinking and allow for multiple responses. This interaction through questioning must be carefully planned to highlight key concepts, skills or specific representations to promote student progress. Educators are encouraged to anticipate students' questions and answers in order to make the exercise even more strategic (for example, by anticipating some common errors). As soon as the learning situation begins, educators should ask questions that are accessible to all students and encourage them to share their ideas in the class group. As students are engaged in solving the problem, questioning and discussion should promotes their justification as a group and develops their critical thinking. During Review, the questioning should support rich mathematical conversation in the whole group and provide educators with the opportunity to assess student understanding of the concepts being learned.

Flexible Groupings

Flexible groupings can foster collaboration and give students the opportunity to participate in rich mathematical conversations, learn from each other, and evolve their mathematical thinking. These structures allow students to work independently of the educator, while benefiting from the support of their peers. It is the intentional combination of large group, small group, pair, and individual work that can foster a rich mathematical learning environment. For this learning situation, the initial scenario can be completed individually, so that each student can handle and observe the coins at their own pace. During the Active Learning phase, small groups of two or three are preferable to encourage the participation of each student when comparing the value of the coins. Review in the whole class group allows students to hear the ideas of others, while bringing their own ideas to the discussion. The choice of flexible groupings can be adapted according to the needs of your class group.

Prior Knowledge and Skills

To be able to complete this learning situation, students must be able to:

- Read and represent whole numbers from 0 to 50.
- Compare and order whole numbers to 50.
- Skip count by 1s, 2s, 5s and 10s.
- Recognize some coins and Canadian dollar bills up to $50.

Learning Goal

At the end of this learning situation, students will be able to identify and compare the value of coins up to 50¢.

Possible Success Criteria Based on the Achievement Chart

Knowledge and Understanding

The student recognizes and names Canadian coins.

Thinking

The student chooses strategies to place the Canadian coins in ascending order.

Communication

The student explains observations of the size, shape, colour, texture, and value of the different coins, as well as the images found on the faces, and demonstrates mathematical reasoning.

Application

The student uses strategies to compare and place coins in ascending order by value.

Materials

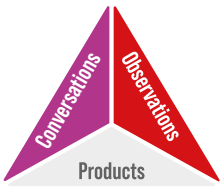
- An empty tissue box;
- Cardstock of various colours;
- Glue stick;
- Markers;
- Canadian play money coin set;
- Base ten material;
- Interlocking cubes of three different colours;
- Appendix 1 - Open Number Line;
- Appendix 2 - Blank Model;
- Appendix 3 - 5¢, 10¢, and 25¢ Coin Models;
- Appendix 4 - Models of Bills up to $50 and Coins of $1 and Over.

Mathematical Vocabulary

bills, hundred, heads, tails, ten, Canadian dollar, order, ascending order, coins, quantity, unit, value

Before Learning (Warm-Up) (20 minutes)

Assessment can be carried out through...



Activate prior knowledge:

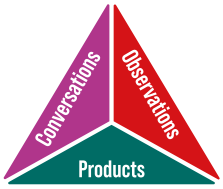
- For this activity, students will have decorated their tissue (monster) boxes beforehand.
- Insert a small amount of play Canadian coins into each student's monster box.
- Have students reach into the box with one hand to touch the coins, one at a time, and guess what each is.
- The student will state a prediction and justify it (for example, I think it's a dime because it's small and it has ridges on the edge). Then, they remove the coin from the box to validate their answer.

Possible educator questions include:

- As you handle the coins in your hands, what do you notice?
- What textures can you feel?
- What details do you see on the heads and tails sides?
- How did the different sizes and colours of coins help you to identify them?
- Can you recognize the image on the coin? What is the image and what does it represent?
- If one cube is worth 1 cent, how many interlocking cubes do you need to represent 5¢? 10¢? 25¢?

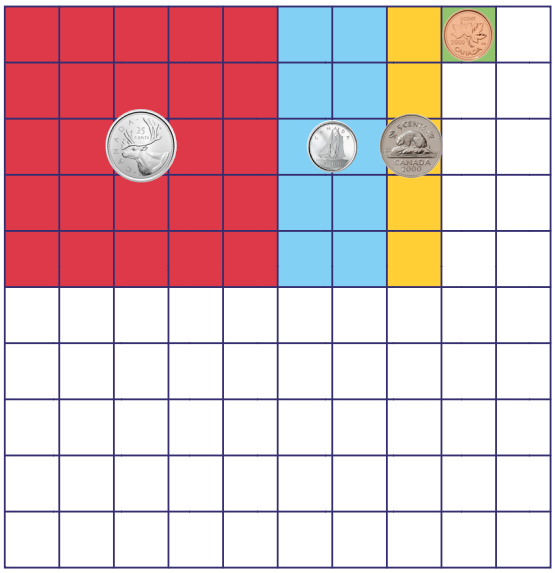
Active Learning (Exploration) (20 minutes)

Assessment can be carried out through...



- Put students in teams of two or three with the coins they collected during the Warm-Up activity.
- Distribute interlocking cubes to students and ask them to construct concrete, proportional representations for the 5¢, 10¢ and 25¢ coins. Once students are familiar with the cube models, they can use the semi-concrete models found in Appendix 2 - Blank Model and Appendix 3 - 5¢, 10¢ and 25¢ Coin Models.

Note : It is important to talk about the 1¢ coin, as students need to understand that the unit of Canadian money is one cent and the coin to represent it is called the penny. The interlocking cube models allow students to visualize the value of various coins in relation to the unit 1¢.



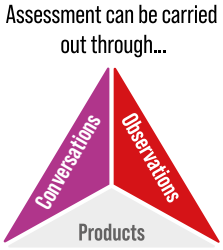
- Distribute Appendix 1 - Open Number Line.
- Ask students to place each coin and its model in ascending order on their work surface.
- Have students locate the value of each coin on the open number line, according to the models placed in ascending order on their work surface.
- Encourage collaboration and participation.
- Have students circulate to see other students' number lines.

Here are some possible questions:

- What numbers do you see on the coins? What might this tell us about each coin?
- Is it cents or dollars? How do you know?
- What is the smallest coin by size? Does it represent the smallest monetary value? How do you know?
- Which Canadian coin is worth the most? How do you know?
- Which Canadian coin has the lowest value? How do you know?

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
Students have difficulty identifying coins and their value using the mathematical vocabulary taught.	• Looking at the coins in front of you, what differences do you notice? • How would you describe the coins in front of you? • Using an anchor chart, review the coins, their values, and math vocabulary.
Students do not place the coins in ascending order of value. Students are unable to explain their ideas clearly.	• What manipulatives might help you? • What features of the coins help you to know their value? • What coin has the least value? greatest value? • How can you use the value of the coins to put them in ascending order? • How can the interlocking cube models help you place the coins in ascending order? • How did you know where to place the coins on the number line? • How do you place the coins in ascending order?

Review (10 minutes)



- Review the activity.
- Review and explain the value of each coin and how it is identified by a number that is visible on the coin.
- Check students' understanding by asking them to place the coins and their models in ascending order.
- Discuss the importance of identifying coins and their value, especially when counting money or making purchases.

Ask students questions to deepen their thinking:

- How have you met the learning goals?
- What do the people and symbols on the coins and bills represent? Invite students to make connections to their own identity.

Consolidation of Learning

- Using Appendix 1.4 - Models of Bills up to $50 and Coins of $1 and Over, repeat the activity with bills and coins of at least $1, using a number line from 0 to 50. Discuss where the $1 and $2 coins fit among the bills.
- Taking turns drawing from the monster box, small groups of students can play battle to compare values. This can be done with bills up to $50. Have students explain their reasoning during the game.

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B1.1 Read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life.

B1.3 Compare and order whole numbers up to and including 50, in various contexts.

B1.5 Count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies.

Data

D1.1 Sort sets of data about people or things according to one attribute, and describe rules used for sorting.

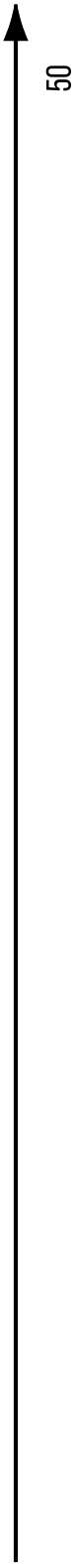
Differentiated Instruction and Universal Design for Learning

- Display math vocabulary words.
- Focus on one item to be recognized at a time.
- Provide visual support (reference) for students to identify coins and their value with greater ease.
- Ensure that the student is able to manipulate concrete materials and make connections to learning situations in the Number strand.

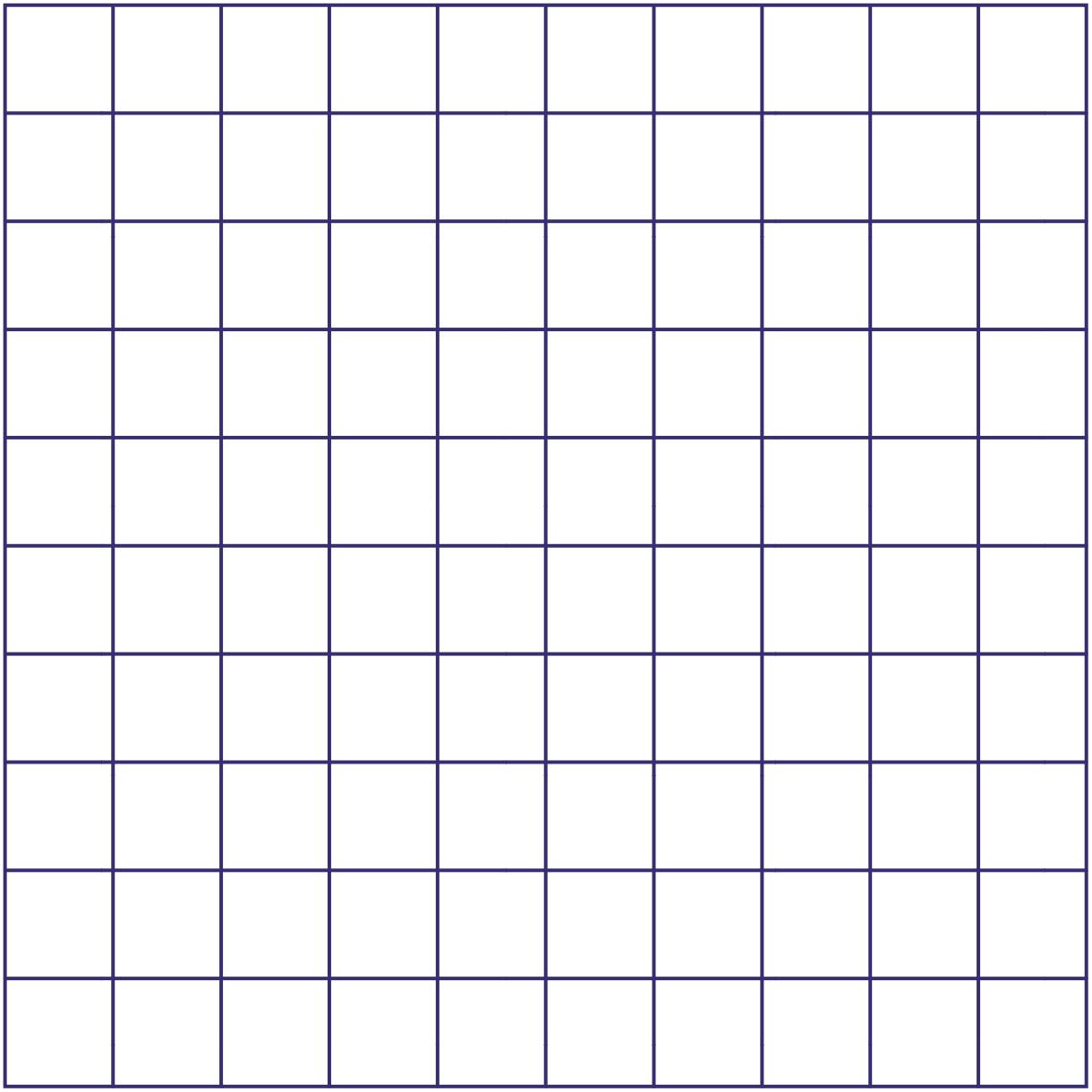
For an Extra Challenge

- Compare the value of coins with the value of bills.
- Represent 50 cents in different ways using various coins.
- Represent $50 in different ways using coins and bills.
- Classify the coins according to an attribute and describe the classification criteria used. Repeat the exercise with the bills.

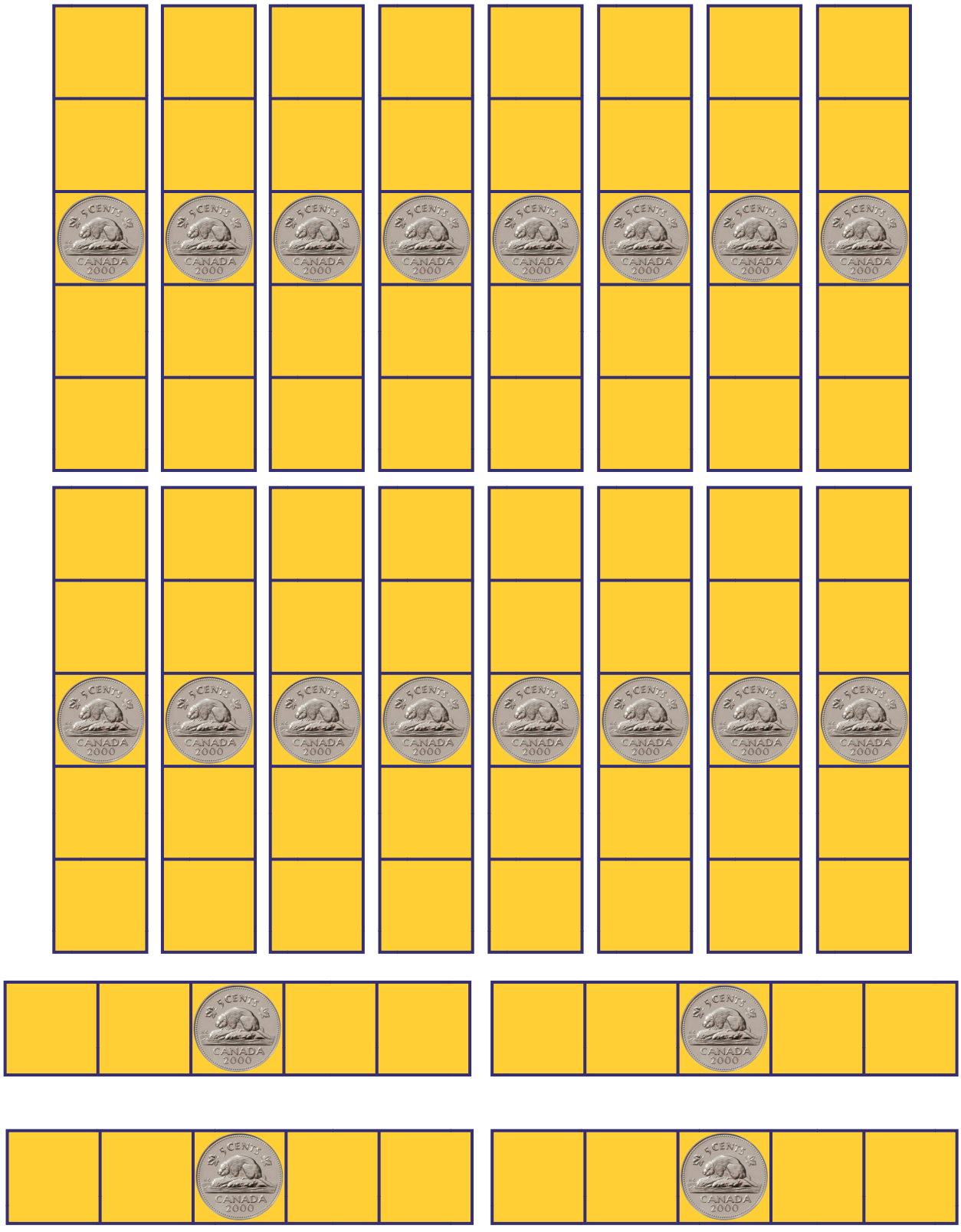
Appendix 1 - Open Number Line

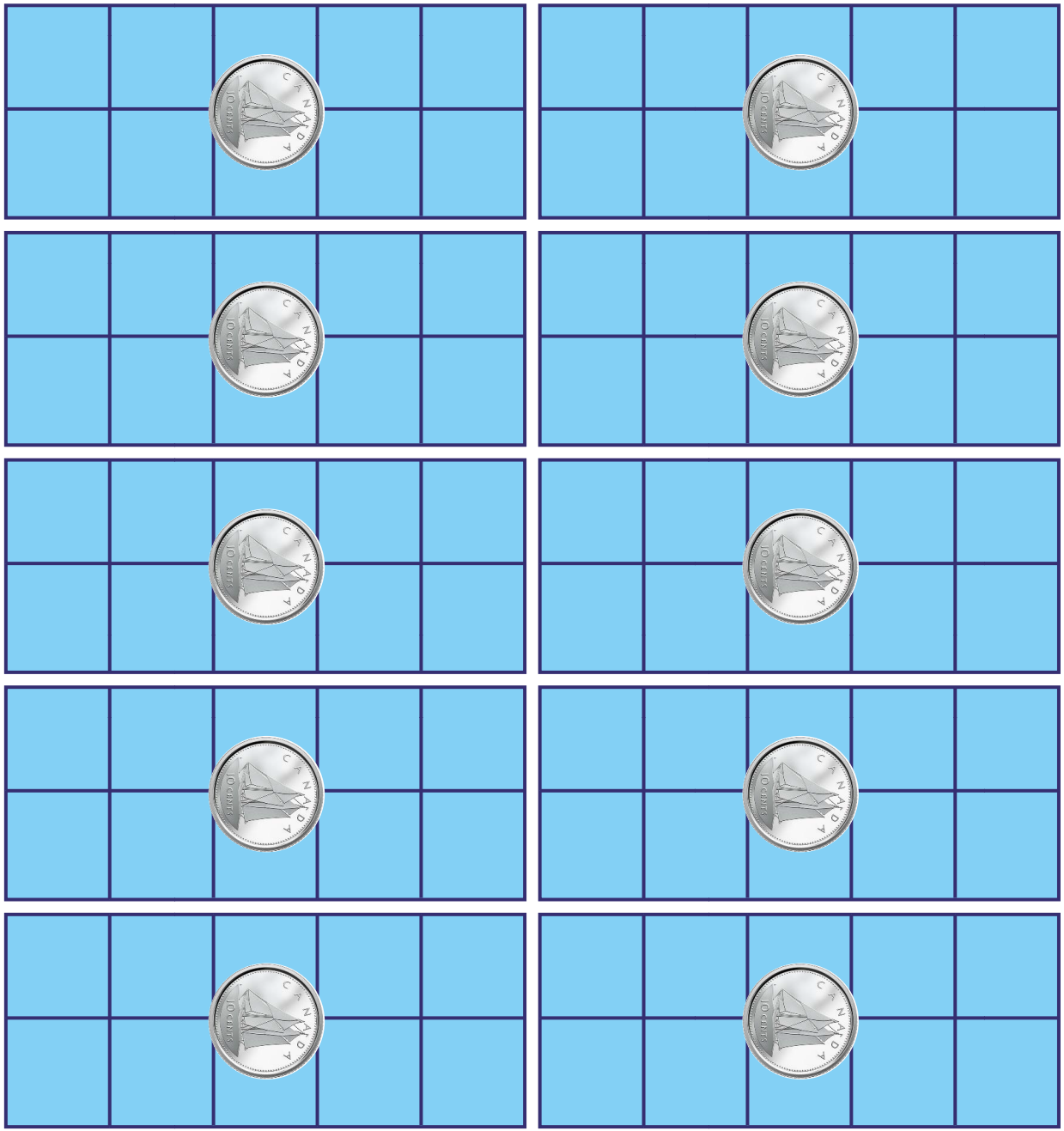


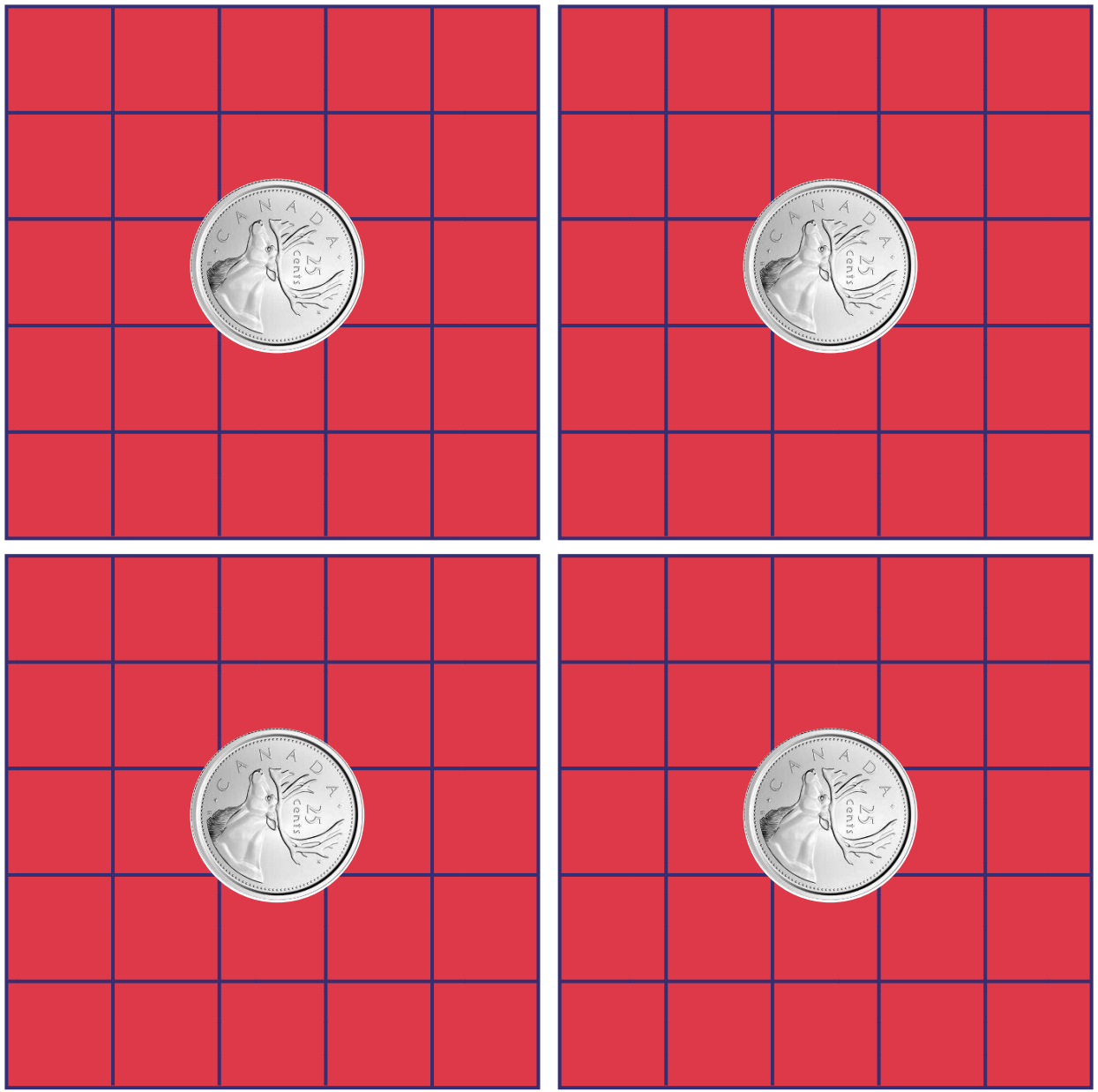
Appendix 2 - Blank Model



Appendix 3 - 5¢, 10¢, and 25¢ Coin Models

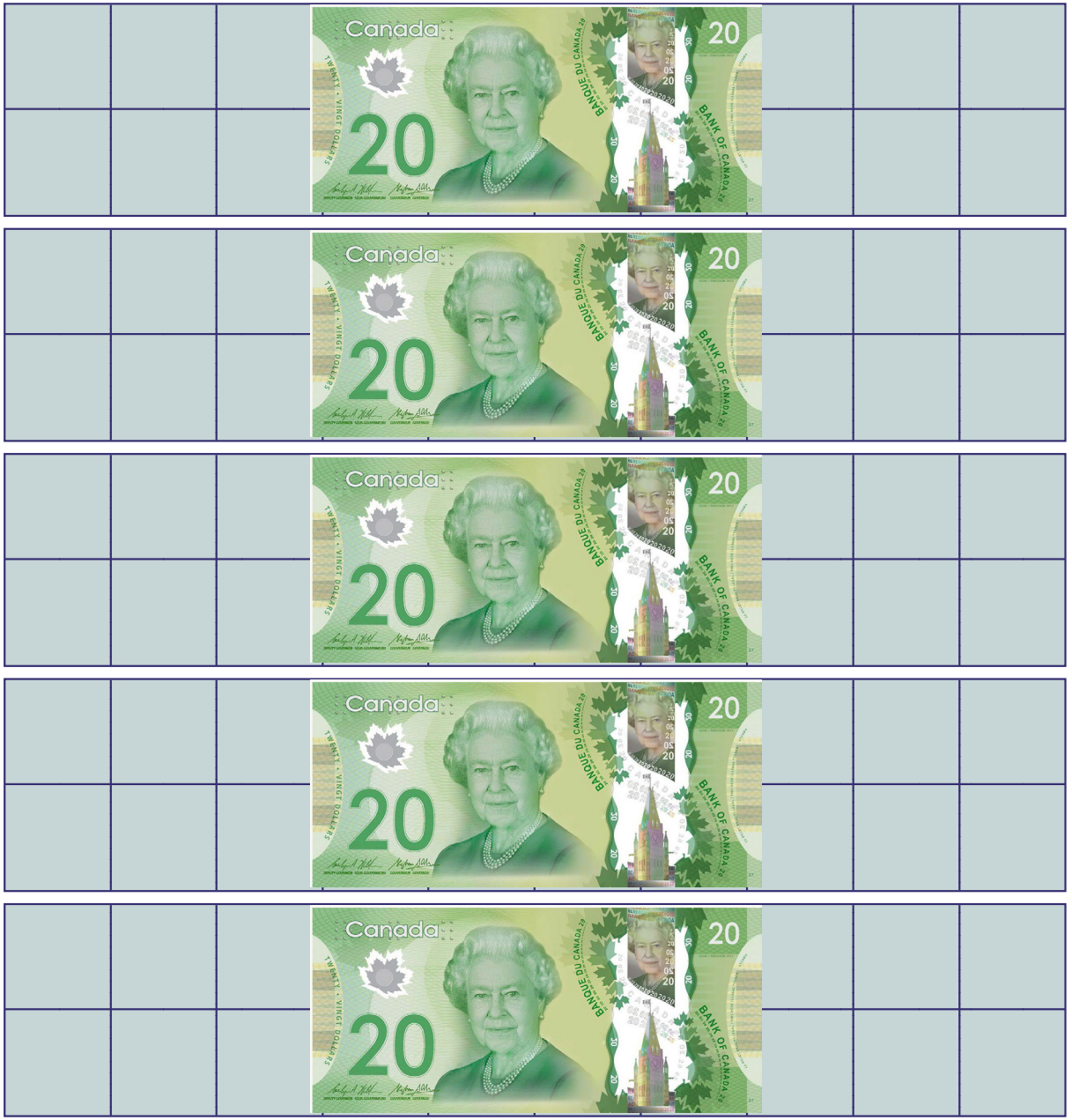





CANADA
25
cents

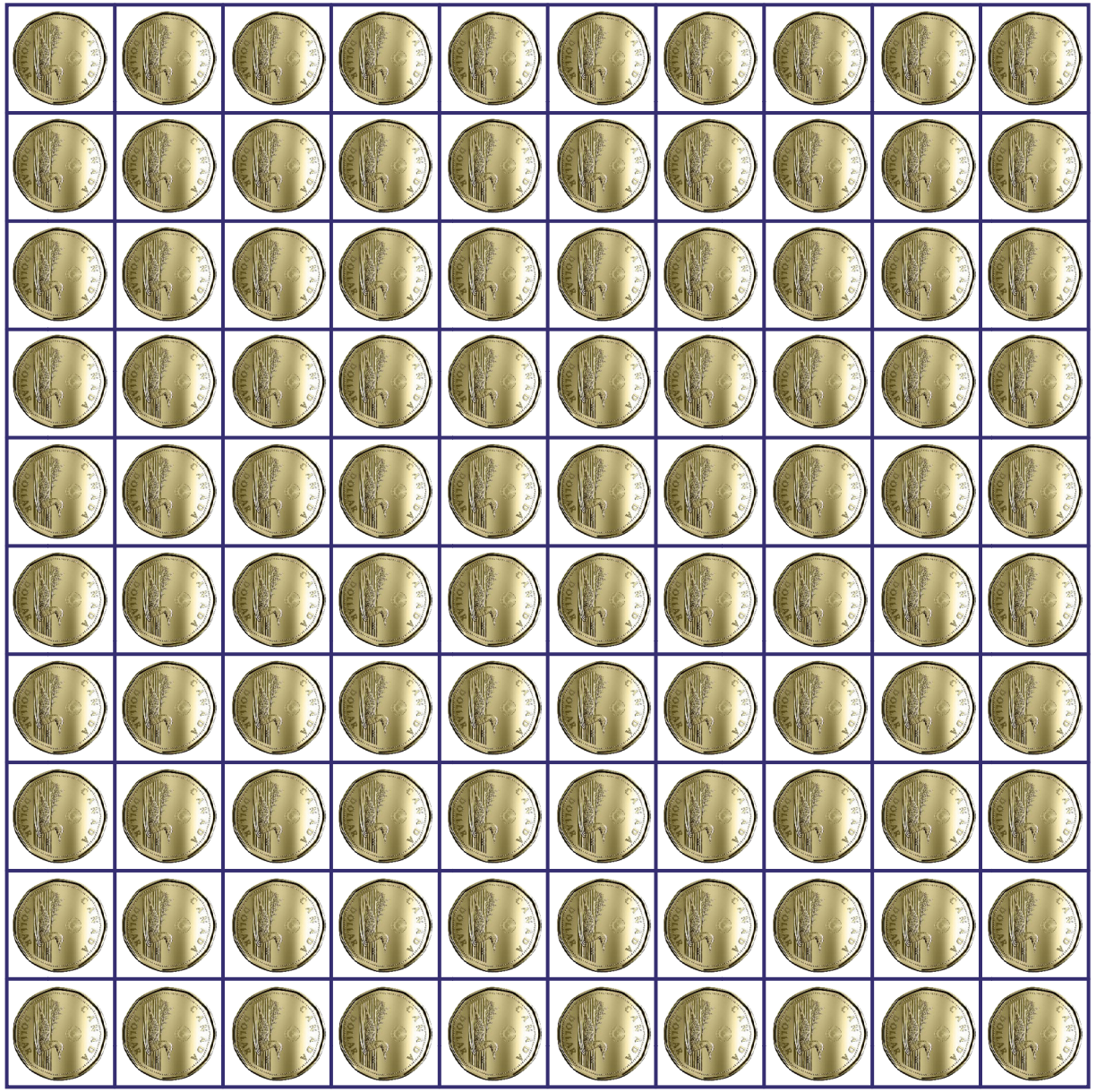
Appendix 4 - Models of Bills up to $50 and Coins of $1 and Over


Canada
10


Canada
20
BANQUE DU CANADA
BANK OF CANADA


Canada
50
50
CINQUANTE • FIFTY DOLLARS
BANK OF CANADA
BANQUE DU CANADA


Canada
50
50
CINQUANTE • FIFTY DOLLARS
BANK OF CANADA
BANQUE DU CANADA




CANADA
2
DOLLARS

Learning Situation – Grade 2

Title : The Mysterious Money Bank
Duration: Approximately 50 minutes

Overview

In this learning situation, students learn to group and count coins and Canadian bills, forming different combinations that add up to a target amount of money.

Overall and Specific Expectations

Financial Literacy

F1. Demonstrate an understanding of the value of Canadian currency.

F1.1 Identify different ways of representing the same amount of money up to Canadian 200¢ using various combinations of coins, and up to $200 using various combinations of $1 and $2 coins and $5, $10, $20, $50, and $100 bills.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning situation, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals.

It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. In this learning situation, a good time for descriptive feedback is during the Active Learning phase. Students model different combinations of a given amount of money. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During the Review phase, some solutions may require descriptive feedback from the educator to ensure that the student has the necessary support to revise their thinking to apply to a new context.

Problem-Solving Tasks and Experiences

This learning situation, where the student must make several combinations of Canadian currency, is a problem-solving experience, as it gives students the opportunity to reason, communicate, represent, make connections and justify thinking. This learning situation has many entry points and all students will be able to participate and propose solutions using their strategies, as well as their critical and creative thinking.

This approach promotes accessibility for all students and the exchange of a variety of mathematical strategies and ideas. This learning situation can be differentiated by using different numbers for the work teams (smaller numbers for a less complex exercise or larger numbers for a more complex exercise), making the task accessible yet challenging for the students.

Math Conversations

By planning lessons like this, which emphasize collaboration and groupwork, the math conversations are ongoing. These conversations allow students to express themselves and react to the mathematical ideas presented. The role of educators will be to ask open-ended, thought-provoking questions to stimulate thinking and allow for multiple responses. This interaction through questioning must be carefully planned to highlight key concepts, skills or specific representations to promote student progress. Educators are encouraged to anticipate students' questions and answers in order to make the exercise even more strategic (for example, by anticipating some common errors). As soon as the learning situation begins, educators should ask questions that are accessible to all students and encourage them to share their ideas in the class group. As students are engaged in solving the problem, questioning and discussion should promote their reasoning and justification as a group and develop their critical thinking. During Review, the questioning should support rich mathematical conversation in the whole group and provide educators with the opportunity to assess student understanding of the concepts being learned.

Flexible Groupings

Flexible groupings can foster collaboration and give students the opportunity to participate in rich math conversations, learn from each other, and evolve their mathematical thinking. These structures allow students to work independently of the educator, while benefiting from the support of their peers. It is the intentional combination of large group, small group, pair, and individual work that can foster a rich mathematical learning environment. For this learning situation, the initial scenario can be done in a whole class group. During the Active Learning phase, small groups of two or three are preferable to promote the participation of each student during the monetary equivalence. Review in the whole class group allows students to hear the ideas of others, while bringing their own ideas to the discussion. The choice of flexible groupings can be adapted according to the needs of your class group.

Prior Knowledge and Skills

To be able to complete this learning situation, students must be able to:

- Skip count to 200 by 1s, 2s, 5s, 10s, 15s and 100s.
- Read, represent, compose and decompose whole numbers from 0 to 200.
- Use the properties of addition and recall addition facts for numbers up to 20.
- Use equalities to represent, describe, and solve situations involving the addition of whole numbers that sum to 100 or less.

Learning Goals

At the end of this learning situation, the student will be able to find different combinations of coins and Canadian dollar bills to represent an amount of money in different ways.

Possible Success Criteria Based on the Achievement Chart

Knowledge and Understanding

The student understands the equivalence relationships between two combinations of coins or bills that represent the same amount of money.

Thinking

The student chooses strategies for adding coins and bills.

Communication

The student communicates their mathematical reasoning using symbols, drawings, explanations, and manipulatives.

Application

The student skip counts by 5s, 10s and 25s to group the Canadian coins and bills.

The student applies strategies for adding coins and bills to represent a variety of possible combinations for different amounts of money.

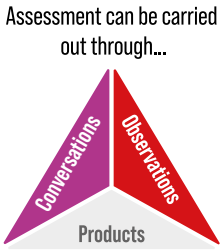
Materials

- Canadian play money set;
- erasable whiteboard, large paper or other surface for students to record their combinations;
- visual support to display problem solving (for example, interactive whiteboard, flashcards, paper strips);
- Appendix 1 - Open Number Line;
- Appendix 2 - Blank Model;
- Appendix 3 - 5¢, 10¢, and 25¢ Coin Models;
- Appendix 4 - Models of Bills up to $50 and Coins of $1 and Over;
- Appendix- Sofia's Money Bank Coins.

Mathematical Vocabulary

buy, add, repeated addition, bills, combination, compose, decompose, skip count, Canadian dollar, save, equivalence, benchmark numbers, coins, quantity, represent, sum, total, value

Before Learning (Warm-Up) (20 minutes)



Present the scenario below to the students:

> **Sofia has saved up enough money to buy a surprise at the Dollar Store. When she reaches into her money bank, she finds different coins, but no $2 coin. What combination of coins can she make to get $2?**

Ask students to examine the coins in Sofia's money bank.

Here are the coins in Sofia's Money Bank:

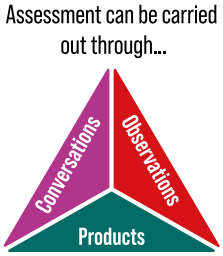
Using Appendices 1 and 2, have students represent the value of the coins above. This gives students a concrete representation of the value of the coins.

Ask students questions to stimulate their thinking and encourage them to share their ideas. Possible questioning include:

- Looking at the contents of Sofia's money bank and the models, what do you notice?
- What is similar? What is different?
- Looking at the coins, how could you group them together to count them? How might you count them?
- Looking at the coin models, how could you group them together to count them? Do you know more than one way to count them?

- Looking at the models, you see that $1 = 100¢ and $2 = 200¢. Is it possible to get the amount of $2 from the 5¢, 10¢, 25¢ and $1 coins? How do you know?
- How many different combinations can we make to get a total amount of $2?
- By making different combinations, how can you vary the coins (or models) to represent the same amount (for example, in what ways can you exchange a 25¢ coin)?
- If we have combinations that include multiple coins, does that change the total value? How do you know?
- How can we get the sum of $2 by combining as few pieces as possible? as few models as possible?
- How can we get the sum of $2 by combining as many pieces as possible? as many models as possible?

Active Learning (Exploration) (25 minutes)



- Explain to students that each team will receive the contents of a money bank that is not Sofia's, so the coins and dollars will be a mystery! To purchase a surprise at the Dollar Store, teams will need to represent an amount assigned to them by the educator (for example, $5, $12, $37, $74, 65¢, 95¢).
- Form teams of two or three students.
- Distribute a quantity of money to students in a small bag to represent the contents of one of the mystery banks.
- Distribute a kit of models, Appendices 1-4, to students to help them visualize the value of bills and coins.
- Be sure to vary the coins and bills in the small bags to allow for differentiation and to encourage a variety of strategies when solving the problem.
- Invite students to discuss and find as many combinations as possible that equal the amount of money assigned.
- Ask students to record their different combinations.
- Circulate, observe and ask questions.

For example:

- Which coins and bills did you group together?
- Why did you choose to group them in this way?
- How did you count them?
- How else can this amount be represented?
- Is it necessary to use all the coins and bills?

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
Some students have difficulty skip counting (for example, 5s and 25s).	• What tool could you use to help you skip count?
The team represents the amount of money using the same coins without varying them in different combinations (for example, 10 dimes, 4 quarters).	• Using the manipulatives and models, can you find more than one way to decompose the number 25? Does this make you think of some coins? • Can you find a way to use the bills or coins that have not yet been used?
The team has difficulty adding up the coins or bills that are part of the chosen combination.	• How might you group the coins and bills to help you count them? • What other strategy could you use to add up more efficiently? • What tool could you use to help you add up your combination?

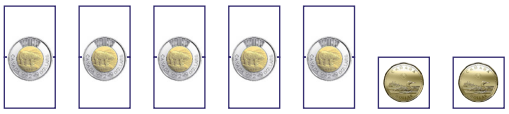
Possible answer

A team receives a mystery bag containing :

The team must represent a $12 amount with the coins in their mystery bag. The team can use the models to represent the coins.

Through discussion, estimation, calculation, and the use of manipulatives, students could represent the value of the coins as:

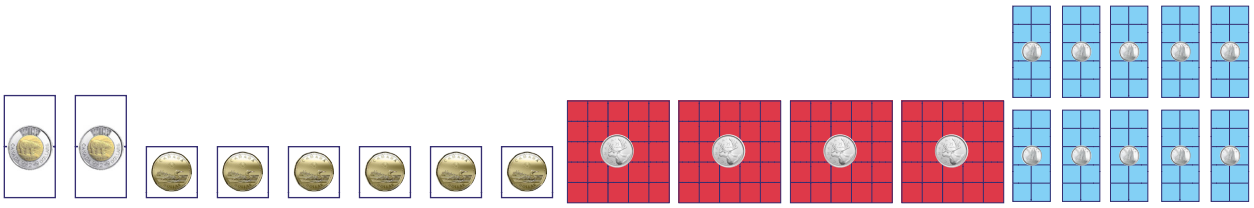
5 $2 coins and 2 $1 coins = $12



4 $2 coins and 4 $1 coins = $12

3 $2 coins and 6 $1 coins = $12

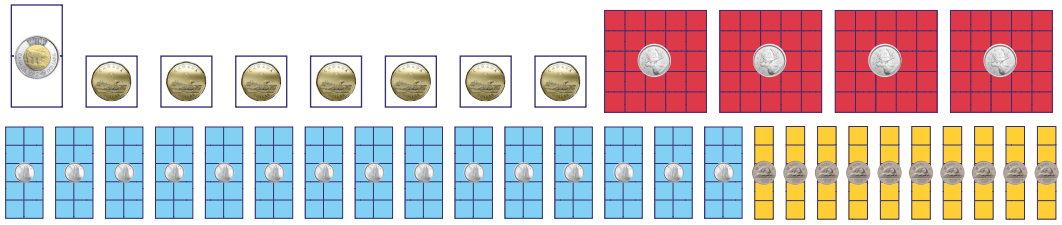
2 $2 coins, 6 $1 coins, 4 25¢ coins, 10 10¢ coins = $12



2 $2 coins, 7 $1 coins, 4 25¢ coins = $12

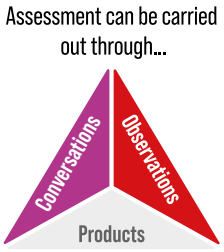
2 $2 coins, 7 $1 coins, 10¢ coins = $12

1 $2 coin, 7 $1 coins, 4 25¢ coins, 15 10¢ coins and 10 5¢ coins = $12



Note: Support students to notice regularities in the exchange of coins to create different combinations (for example, to replace a $2 coin, I need 2 $1 coins). These relationships relate to content C1.4 in the Algebra strand.

Review (10 minutes)



When the students have exhausted the possibilities, ask them to circulate to observe the amounts and combinations of the other teams in order to compare the representations.

Ask students questions to deepen their thinking:

- Why do you think it is important to be able to make several combinations to represent an amount of money?
- In your opinion, when purchasing a good or service, is it better to use as many coins and bills as possible or as few coins and bills as possible?
- Looking at the various representations of other teams, what are the similarities and differences?
- What strategy would you like to use next time? Explain why.
- Which representation or strategy do you think is most effective? Explain why.
- Do you feel you have met the learning goals?
- How did you feel during the teamwork? What emotions did you experience? What strategies could you use in future teamwork to have an even more positive experience?

Review with students that the total value is always the same no matter how many coins are combined. The important thing is to recognize the value of the coins and see how they can be combined to make the same amount. Using the models allows the student to visualize the values of the coins and therefore the amount of money to be represented.

Consolidation of Learning

- Have each group of students choose an amount for another group to represent using play money. Have the groups make a few combinations first to make sure there are enough varied coins in the money bank for the given amount.
- On the interactive whiteboard, show food or objects that students are familiar with, such as fruit, snacks, educational games, or other items. Have groups of students guess the price of the object, then have them choose the coins and bills needed to pay for it. Next show the price of the food or object. Have groups use a variety of combinations to match this amount. Have students walk around the classroom to see the different possible combinations for the same amount.

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B1.1 Read, represent, compose, and decompose whole numbers up to and including 200, using a variety of tools and strategies, and describe various ways they are used in everyday life.

B1.4 Count to 200, including by 20s, 25s, and 50s, using a variety of tools and strategies.

B2.2 Recall and demonstrate addition facts for numbers up to 20, and related subtraction facts.

B2.4 Use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of whole numbers that add up to no more than 100.

Algebra

C1.4 Create and describe patterns to illustrate relationships among whole numbers up to 100.

C2.3 Identify and use equivalent relationships for whole numbers up to 100, in various contexts.

Differentiated Instruction and Universal Design for Learning

- Provide visual supports (reference) for students to identify coins and their value with greater ease.
- Model the task with a small group by representing the monetary equivalencies using concrete models.
- Provide students with a hundreds chart, Rekenrek, or other manipulatives that make it easier for them to count.
- Depending on student interest, adapt the learning situation, change the name of the store, and the purchases to be made.
- To facilitate skip counting, initially offer only 5¢ and 10¢ coins to some teams or $1 coins, $5, and $10 bills, making connections to the 5 and 10 benchmarks on number lines or hundreds charts, for example.

For an Extra Challenge

- Offer only certain coins or bills to represent different amounts of money (develop students' thinking skills).
- Encourage students to do mental math and have them validate their answers using the concrete materials.
- Encourage students to explore and use various manipulatives to represent the same amount of money.

Appendix- Sofia's Money Bank Coins

Learning Situation – Grade 3

Title : How Much Does It Cost?
Duration: 50 minutes

Overview

In this learning situation, students will expand their knowledge of a simple cash transaction by estimating and calculating the change to be given in a simulated purchase in a realistic and familiar context.

Note: This learning situation can be subdivided into several small activities to allow students to deepen their knowledge and make connections with other concepts.

Overall and Specific Expectations

Financial Literacy

F1. Demonstrate an understanding of the value and use of Canadian currency.

F1.1 Estimate and calculate the change required for various simple cash transactions involving whole-dollar amounts and amounts of less than one dollar.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning situation, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals. It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. In this learning situation, a good time for descriptive feedback is during the Active Learning phase. Students practice paying for items with different combinations of bills or coins, and determining the change which would be given. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During the Review phase, some solutions may require descriptive feedback from the educator to ensure that the student has the necessary support to revise their thinking to apply to a new context.

Problem-Solving Tasks and Experiences

This learning situation has many entry points, and all students will be able to participate and propose solutions using their strategies, as well as their critical and creative thinking.

The flow of this learning situation can be differentiated by providing work teams with individualized purchase amounts that will make the task accessible, yet challenging.

Math Conversations

By planning lessons like this, which emphasize collaboration and groupwork, the math conversations are ongoing. These conversations allow students to express themselves and react to the mathematical ideas presented. The role of educators will be to ask open-ended, thought-provoking questions to stimulate thinking and allow for multiple responses. This interaction through questioning must be carefully planned to highlight key concepts, skills or specific representations to promote student progress. Educators are encouraged to anticipate students' questions and answers in order to make the exercise even more strategic (for example, by anticipating some common errors). As soon as the learning situation begins, educators should ask questions that are accessible to all students and encourage them to share their ideas in the class group. As students are engaged in solving the problem, questioning and discussion should promote their reasoning and justification as a group and develop their critical thinking. During Review, the questioning should support rich mathematical conversation in the whole group and provide educators with the opportunity to assess student understanding of the concepts being learned.

Flexible Groupings

Flexible groupings can foster collaboration and give students the opportunity to participate in rich math conversations, learn from each other, and evolve their mathematical thinking. These structures allow students to work independently of the educator, while benefiting from the support of their peers. It is the intentional combination of large group, small group, pair, and individual work that can foster a rich mathematical learning environment. For this learning situation, the initial scenario can be done in small diverse groups of two or three, so that students can share strategies and be inspired by other ideas. During the Active Learning, small groups of two or three are preferable to promote the participation of each student. Review in the whole class group allows students to hear the ideas of others, while bringing their own ideas to the discussion. The choice of flexible groupings can be adapted according to the needs of your class group.

Prior Knowledge and Skills

To be able to complete this learning situation, students must be able to:

- Represent, compose, and decompose whole numbers from 0 to 1000, using a variety of tools and strategies.
- Skip count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies.
- Round whole numbers to the nearest 10 and 100 in a variety of contexts.
- Demonstrate an understanding of algorithms for adding and subtracting whole numbers by making connections to and describing the way other tools and strategies are used to add and subtract.
- Use mental math strategies, including estimation, to add numbers that sum to 1000 or less and to subtract whole numbers equal to or less than 1000, using a variety of tools and algorithms.

Learning Goals

At the end of this learning situation, the student will be able to:

- Estimate and calculate the cost of an item.
- Estimate and calculate the payment as well as the change to be returned when simulating a purchase, in cash.
- Communicate their mathematical reasoning using learned vocabulary.
- Apply the steps of a money transaction in another problem-solving exercise simulating a purchase.

Possible Success Criteria Based on the Achievement Chart

Knowledge and Understanding

The student understands estimation strategies.

Thinking

The student chooses strategies for adding and subtracting coins and bills.

Communication

The student communicates their mathematical reasoning using symbols, drawings, explanations, and manipulatives.

Application

The student solves money problems that simulate a monetary transaction in a variety of contexts, first using the concept of estimation and then applying the various steps of a monetary transaction.

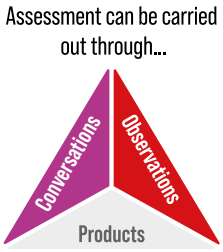
Materials

- pencil case;
- pencil;
- calculator;
- labels;
- markers;
- large chart paper or whiteboard;
- Canadian play money coin set.

Mathematical Vocabulary

purchase, cash, round up, estimate, count, calculate, hundred, cost, total, dollar, sale, change to be returned, payment, wallet, money transaction, amount of money

Before Learning (Warm-Up) (25 minutes)



Present the scenario below to the students:

> On the first day of school, Didier notices that a classroom has several school items used during math lessons. He wonders how much some of these items might have cost.

- Pre-label a pencil with a price of 52¢, a pencil sharpener with a price of 47¢ (amounts that are less than $1), a calculator with a price of $8, and a globe with a price of $16 (amounts that are more than $1).

MONETARY TRANSACTION		SECOND MONETARY TRANSACTION	
Pencil: 52¢		**Calculator: $8**	
Pencil sharpener: 47¢		**Globe: $16**	

- Explain to students that they will perform two simple monetary transactions (one at a time) with these items to simulate a purchase.
- Group students randomly into teams of two or three.

- Give each team the coins and bills shown below and tell them that these will be their wallet content for the two transactions.

- Present the following information:
  - **First monetary transaction** Didier asks himself the following question: If we had to buy a pencil that costs 52¢ or a pencil sharpener that costs 47¢, how much money could we give to the store clerk to make the payment if we have the following coins and bills in our wallet? Also, what change would we get back?
  - **Second monetary transaction** Didier asks himself the following question: If we had to buy a calculator that costs $8 or a globe that costs $16, how much money could we give to the store clerk to make the payment if we have the following coins and bills in our wallet? Also, what change would we get back?

- Ask students questions in order to deepen their thinking about the possibilities of making the payment. Encourage students to pay with different combinations in order to practice estimating and calculating the change to be given.

Possible questions include:

- Which coin or bill is worth less than the price of the pencil? the price of the pencil sharpener? the price of the calculator? the price of the globe?
- Which coin or bill is worth more than the price of the pencil? the price of the pencil sharpener? the price of the calculator? the price of the globe?
- Do we have enough cash to pay for the pencil and sharpener? to pay for the calculator and globe? How do you know?
- How can you calculate the change to be given? By adding? By subtracting?

Ask students to estimate the total cost of each of the two money transactions and determine the amount of money needed to pay. Then, ask students to estimate the change to be given as a result of each purchase. Explain to students that depending on the amount given to make the payment, the change to be given may vary.

When students have completed the estimation, ask them to calculate the total cost of both monetary transactions.

To help students estimate and calculate, revisit mental math strategies in a class setting, such as adding, using compensation, decomposing and adding parts, looking for compatible numbers, or other personal algorithms. Encourage mathematical conversation in the groups by asking students to communicate the strategies they used to solve the problem.

Note When using cash, actual costs must be rounded to the nearest 5¢, as the 1¢ coin has not been in circulation since 2013; however, if paying with a debit or credit card or by electronic transaction, there is no need to round to the nearest 5¢ and no change will be required.

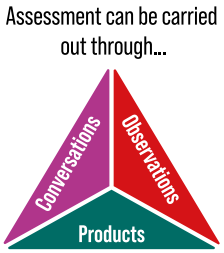
Ask students to round up the total cost of the first transaction to the nearest 5¢. If necessary, provide examples of rounding to students. For example, the ruler costs 44¢ - round up to 45¢ to determine its cash cost. The pencil sharpener costs 47¢ - round to 45¢ to determine its cash cost. If the pencil costs 52¢, is its price closer to 50¢ or 55¢?

Finally, ask students to calculate the change to be given and determine how it might be given, that is with what coins.

Repeat the same steps to solve the problem with the purchase of the calculator and globe.

Circulate and encourage students to communicate their ideas and represent their work and thinking in different ways.

Active Learning (Exploration) (25 minutes)



Group students into small teams and invite them to take a pencil case of their choice. Have them choose 4 or 5 items from the pencil case and mark a price on them that is less than $1 or dollar value.

Circulate and validate students' choices so that there is a variety of prices and different amounts to make new monetary transactions.

Ask students to model the purchase of items in order to experience new money transaction situations. First, ask students to choose an item costing less than $1. Then, ask students to choose 2 or 3 items with whole dollar prices to estimate and calculate the cost of the purchase and the change to be given.

Repeat the activity several times, changing roles and varying items and prices.

Ask students to leave a record of their reasoning and calculations on a large piece of paper or erasable surface.

Possible answers

I choose a pencil sharpener for 47¢. Since 47 is close to 50, I estimate that the total cost will be about 50¢. I could pay with a $1 coin and receive 50¢ in change. Since $1 = 100¢, I can do 100 - 50 to estimate the change to be given.

Since I am using cash, I have to round down the total cost to the nearest 5 cents, 47 is closer to 45 than 50, so the actual cost of my purchase will be 45¢. Paying with a $1 coin, I calculate the change to be given by determining the difference between 45 and 100. I can use addition or subtraction to do this:

Addition

45 ¢ + 5 ¢ = 50 ¢
50 ¢ + 25 ¢ = 75 ¢
75 ¢ + 25 ¢ = 100 ¢ or 1 $

The change due is 5¢ + 25¢ + 25¢, so 55¢.

Subtraction

100 ¢ – 40 ¢ = 60 ¢

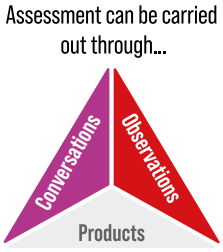
60 ¢ – 5 ¢ = 55 ¢

The change to be given is 55¢.

I will make change with 2 quarters and a nickel.

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
Students have difficulty estimating the cost of 2 or more items to complete a simple monetary transaction.	• What mental math strategy could you use? • What tools could you use to help you estimate the amounts?
Students have difficulty calculating the change to be given during the purchase simulation.	• What operations would allow you to calculate the change to be given? • Which strategy would allow you to determine the difference between the actual cost and the amount paid? • What tools could you use to make your job easier?
Students seem to choose overly simple amounts (for example, multiples of 5) for the prizes chosen.	• Offer more varied prizes while remaining in the student's proximal zone. • Support the student by modeling a purchase with a price that could take the student out of their comfort zone to provide steps or tools to further their understanding.

Review (30 minutes)



- When teams are finished, have students circulate and observe the other teams' representations.
- Ask students questions to encourage them to communicate their mathematical reasoning.

Possible questions include:

- How did you select the coin(s) or bill(s) to give to the clerk to make the payment?
- Are there different combinations of coins or bills that a person can use to pay for a purchase? Is one way better than another?
- What strategies did you use to calculate the change to be given? Did you show your thinking?
- Did everyone in your group use the same strategy?
- Have you noticed similar thinking demonstrated in your calculations and the calculations of the other teams? different thinking? Did you see something you might try next time to solve a similar problem?
- Do you feel you have met the learning goals?
- How did you feel when you compared your representation with others? Were you anxious or apprehensive because of the different responses? If so, how could I better support you to improve your resilience and self-confidence? What strategies could you use if such a situation occurs again?

Consolidation of Learning

- Use play money to make simulated monetary transactions for class rewards or sports equipment at recess.
- Taking into account the interests of the class, change the context of the money transactions, for example: drawings of baked goods made by the children can be exchanged for play money. Each small group of students can imagine themselves in their own café, restaurant or specialty store.

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B1.1 Read, represent, compose, and decompose whole numbers up to and including 1000, using a variety of tools and strategies, and describe various ways they are used in everyday life .

B1.3 Round whole numbers to the nearest ten or hundred in various contexts.

B2.3 Use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used.

B2.4 Demonstrate an understanding of algorithms for adding and subtracting whole numbers by making connections to and describing the way other tools and strategies are used to add and subtract.

B2.5 Represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 1000, using various tools and algorithms.

Algebra

C2.2 Determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not.

C2.3 Identify and use equivalent relationships for whole numbers up to 1000, in various contexts.

Differentiated Instruction and Universal Design for Learning

The activity can be modified to meet the needs of the students.

- Provide visual supports (reference) for students to identify coins and their value with greater ease.
- When setting up the scenario, suggest that the student start with a $1 coin to purchase the 52¢ pencil and a $10 bill to purchase the $8 calculator.
- Provide students with a hundreds chart, Rekenrek, or other manipulatives that make it easier for them to count.
- Depending on the students' interests, change the items to be sold (games, balls, drawings, etc.). By varying the items to be sold, there will be an impact on the prices.

For an Extra Challenge

- Ask students to create other scenarios for the rest of the class to solve.
- Encourage students to use only certain coins or bills in money transactions (for example, only $1, 25¢, and 10¢ coins can be used).
- Ask the student to find a combination of coins or bills that includes as many or as few coins as possible, or a specific number of coins and bills. Given some constraints, the student will have to think of possible combinations of coins and bills within the guidelines (for example, use 5 coins to get 75¢).

Learning Situation – Grade 4

Title : Games for the Playground!
Duration: Approximately 120 minutes

Overview

In this learning situation, students perform calculations to determine the total cost of various sports equipment for the classroom. In addition, the students will determine the best method of payment for each transaction and justify their choice. For the simulation of a cash transaction, change will be calculated.

Overall and Specific Expectations

Financial Literacy

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

F1.1 Identify various methods of payment that can be used to purchase goods and services.

F1.2 Estimate and calculate the cost of transactions involving multiple items priced in whole-dollar amounts, not including sales tax, and the amount of change needed when payment is made in cash, using mental math.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning situation, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals.

It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. In this learning situation, a good time for descriptive feedback is during the problem solving. In small groups, students estimate and calculate the cost of transactions, explore various methods of payment, and choose play items for recess that best meet the needs of the students in their class. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During the Review phase, mathematical conversations may require descriptive feedback from educators as they probe for students' reasoning about their choices when establishing a budget, and the strategies they used to calculate the cost of transactions and the unit prices.

Problem-Solving Tasks and Experiences

This learning situation, where the student must make several combinations of Canadian currency, is a problem-solving experience, as it gives students the opportunity to reason, communicate, represent, make connections and justify thinking. In addition, the student must estimate and calculate the cost of selected items using various methods of payment. This learning situation has many entry points, and all students will be able to participate and propose solutions using their strategies, as well as their critical and creative thinking.

This approach promotes accessibility for all students and the exchange of a variety of mathematical strategies and ideas. This learning situation can be differentiated by using different numbers for the work teams (smaller budget, therefore less complex or larger budget, therefore more complex), making the task accessible yet challenging for the students.

Math Conversations

By planning lessons like this, which emphasize collaboration and groupwork, the math conversations are ongoing. These conversations allow students to express themselves and react to the mathematical ideas presented. The role of educators will be to ask open-ended, thought-provoking questions to stimulate thinking and allow for multiple responses. This interaction through questioning must be carefully planned to highlight key concepts, skills or specific representations to promote student progress. Educators are encouraged to anticipate students' questions and answers in order to make the exercise even more strategic (for example, by anticipating some common errors). As soon as the learning situation begins, educators should ask questions that are accessible to all students and encourage them to share their ideas in the class group. As students are engaged in solving the problem, questioning and discussion should promote their reasoning and justification as a group and develop their critical thinking. During Review, the questioning should support rich mathematical conversation in the whole group and provide educators with the opportunity to assess student understanding of the concepts being learned.

Prior Knowledge and Skills

To be able to complete this learning situation, students must be able to:

- Add whole numbers.
- Round decimals to the nearest whole number.
- Use mental math strategies to add whole numbers.
- Remember multiplication facts up to use 10 x 10.
- Represent and solve problems relating to the multiplication of a two-digit whole number by a one-digit whole number.

Learning Goals

At the end of this learning situation, the student will be able to:

- Estimate and calculate the cost of various transactions.
- Represent and solve problems of addition and subtraction of whole numbers.
- Determine various methods of payment.
- Determine the best product according to the class's needs.

Possible Success Criteria Based on the Achievement Chart Categories

Knowledge and Understanding

The student understands the concept of estimation.

The student defines what constitutes a method of payment.

The student names different methods of payment.

Thinking

The student selects strategies for adding and subtracting costs, as well as effective strategies for mental calculation.

The student chooses the right data, the appropriate operations as well as the method of payment according to the situation and the preferences of the individual.

The student evaluates whether the price of an object constitutes a good purchase.

Communication

The student communicates mathematical reasoning using financial literacy conventions and terminology using drawings, explanations, and manipulatives.

The student organizes their calculations by showing their work.

Application

The student uses mental math strategies to estimate the cost of the transaction.

The student completes transactions involving several items, by calculating the cost of transactions comprising several items.

Materials

- list of websites or catalogs of equipment for recess;
- Appendix 1 - Playground Equipment for Recess;
- Appendix 2 - Methods of Payment;
- calculators;
- Canadian play money kit;
- dry-erase markers;
- erasable whiteboard;
- markers;
- chart paper;
- paper.

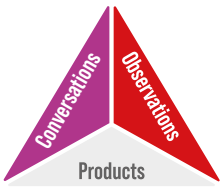
Mathematical Vocabulary

method of payment, cheque, debit card, credit card, electronic wallet, good, service, transaction, cash

CONTENTS

Before Learning (Warm-Up) (30 minutes)

Assessment can be carried out through...

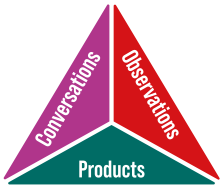


- Facilitate a discussion with students by asking the following questions and use the images (Appendix 2 - Methods of Payment) below to engage students in the conversation:

- What does "method of payment" mean?
- Can you name different methods of payment that your family members use?
- What methods of payment do your parents use to purchase goods or services?
- What are the advantages and disadvantages of the different methods of payment?
- Can we always use any methods of payment?
- Is it important to estimate the total transaction cost of purchasing multiple items if you are paying with cash? If you pay with a debit card? Why?
- How do you know if you are making a good purchase? How do you know if the price is reasonable?

Active Learning (Exploration) (60 minutes)

Assessment can be carried out through...



- Form teams of two students.
- Provide students with the necessary materials.

Present the scenario below to the students:

> **Your school's school council is offering school staff up to $250 to purchase playground equipment for their students. They should keep their receipts and submit them for reimbursement afterwards. Your teacher asks for your help in determining what could be purchased.**

- Brainstorm with students about what game items to purchase, knowing there is a budget of $250.
- Students make their own list of equipment using an Internet search or catalogs provided by educators.

Note : Appendix 1 - Playground Equipment for Recess provides examples of game items and their prices.

- Explain to students that each team will have to choose a method of payment to pay for the items and justify their choice. Students should explain how to use this method of payment and why it is a good choice.

Note: Becoming familiar with the various methods of payment people use to purchase goods and services allows students to develop consumer awareness as well as an understanding of the factors that influence the choice of a method of payment.

- Inform the students that during the Review phase, they will have to present and justify the list of items and the strategies used to perform the calculations, while explaining the method of payment chosen. Emphasize the importance of making estimations beforehand rather than applying algorithms immediately.
- Allow enough time for them to complete the task. Circulate in the classroom and observe the strategies used by the students. Provide support as needed to help some groups progress by asking scaffolded questions (see below).

Make sure that the students understand the task at hand by asking questions such as:

- Who can describe the task in their own words?
- What data is relevant in this situation?

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
The group has difficulty recognizing useful information.	• Explain, in your own words, the task you are working on. • What important information will help you solve the problem? • How is this similar to other situations in your daily life?
There is too much data, and the team is unable to do the calculations.	• What strategies might you use? • How might you represent data to help you understand it. How might you manipulate the data?

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
The group fails to target a strategy to calculate the total cost of transactions.	• What manipulatives or mathematical tools can you use to help you solve the problem?
The group cannot justify its choice of method of payment.	• What can you tell me about your method of payment?
The group is unable to target a strategy to calculate the amount to be returned following a cash transaction.	• What strategies might you use? • What manipulatives or mathematical tools can you use to help you solve the problem?
The group can't decide which equipment best suit their class.	• How can you find out the interests of the students in your class?

Possible answer

Group 1 - Here is our list compiled using Appendix 1 - Playground Equipment for Recess, as well as our estimations of the total cost:

- Six scoop ball sets - $76 (approximately $80)
- Four inflatable rubber balls – 4 × $12 is approximately 4 × $10, so $40
- Set of 6 skip ball jumping rings – $33 (approximately $30)
- Four basketballs – 4 × $20 = $80
- Two sets of tennis balls – 2 × $6 is approximately 2 × $5, so $10

$$\$80 + \$40 + \$30 + \$80 + \$10 = \$240$$

Here are our choices and calculations:

- Six scoop ball sets – $76
- Four inflatable rubber balls –

$$\begin{aligned} 4 \times \$12 &= (4 \times 10) + (4 \times 2) \\ &= 40 + 8 \\ &= \$48 \end{aligned}$$

- Set of 6 skip ball jumping rings – $33 (approximately $30)
- Four basketballs –

$$\begin{aligned} 4 \times 20 &= (4 \times 10) + (4 \times 10) \\ &= 40 + 40 \\ &= \$80 \end{aligned}$$

- Two sets of tennis balls – 2 × $6 = $12
- Total cost

$$\begin{aligned} 76 + 48 + 33 + 80 + 12 &= 76 + (48 + 12) + (33 + 80) \\ &= 76 + 60 + 113 \\ &= 136 + 113 \\ &= \$249 \end{aligned}$$

We used cash because it's easier to control expenses. With a budget of $250, it's easier to see how much money we have left and how much money is being spent as we go. Change to be returned is $1.

In order to choose the equipment that best meet the needs of our class, I have to think about the age group of the students as well as their preferences. I also have to justify my choices. I prepared a table with the data.

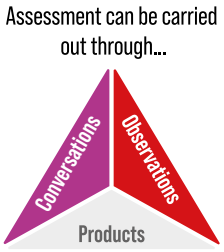
EQUIPMENT	JUSTIFICATION
Tennis balls	Some students like to play catch with tennis balls.
Inflatable rubber balls	Many students in our class enjoy playing the 4 corners game, this type of ball is perfect!
Basketballs	Students like to play horse game or 21.
$319 play item set with the other Grade 4 class	There are a variety of play items, including skipping ropes. Some students enjoy skipping rope.

If I were to make the same table for a Grade 1 class, the choices would be different due to age and areas of interest.

EQUIPMENT	JUSTIFICATION
Six scoop ball sets	This game is good for working on motor skills, which is important for students in Grade 1. It can be played with 2 or more children. Most children enjoy playing with others.
Set of 6 skip ball jumping rings	This game is individual, as sometimes students prefer this type of game.
Velcro ball game set	This game is good for working motor skills in students. It is played with 2 or more players.
Inflatable rubber balls	Often the youngest like to jump or dribble a big ball with their friends.
Hoops	Students can create a hopscotch game with hula hoops.

- Ask the teams to compare their results with those of another team.
- Post the calculations as well as the explanation and justification of the students' choice of methods of payment on the wall and offer them the opportunity to make comments and ask questions to the different groups by posting sticky notes on the solutions that interest them. Ensure that questions and comments are constructive and linked to the learning goals and success criteria.
- Get the students thinking by asking them the following questions: Compare your results with those of another group. Are you satisfied with your solution? If yes, explain why. Otherwise, modify your solution.

Review (30 minutes)



By highlighting a few examples of students' strategies and specific reflections that are related to the learning goals and the success criteria, lead a mathematical conversation to elicit the strategies and the skills used and the knowledge acquired.

- How did you choose the appropriate equipment for the different classes?
- Was your estimation accurate enough?
- What strategies did you use to calculate the cost?
- Why do you think we put a set of game items worth over $250 in the Appendix 1 - Playground Equipment for Recess?

Possible answer

Another class can be asked to join us in purchasing other game items with the difference of $181.

$$
\begin{aligned}
500 - 319 &= ? \\
319 + 1 &= 320 \\
320 + 80 &= 400 \\
400 + 100 &= 500 \\
&= \$181
\end{aligned}
$$

- What challenges did you face while solving the problem?
- What did you learn from those mistakes or challenges?
- Do you feel you have met the learning goals?
- During groupwork, did you manage to justify your reasoning for the choice of method of payment within your group? Have you managed to establish links with everyday life situations in order to convince your classmates? As a group, were you able to formulate thoughtful opinions in order to make an informed decision? If not, how could you go about it next time? What strategies could you implement in order to reach a harmonious and informed decision?

Following the discussions, ensure that the student:

- Recognize the usefulness of estimating the result of a calculation before performing it.
- Can justify their choice of method of payment.
- Can determine the change to be given following a cash transaction.

Give students the opportunity to note important elements related to mathematical concepts.

Consolidation of Learning

- Ask the group to survey other classes in the school to determine what recess equipment the students would order. Students prepare a graph with their data.
- Do the same exercise with a higher budget and comparing prices in more than one store.

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B2.2 Recall multiplication facts from 1 × 1 to 10 × 10, and related division facts.

B2.4 Represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 10 000 and of decimal tenths, using appropriate tools and strategies, including algorithms.

B2.5 Represent and solve problems involving the multiplication of two- or three-digit whole numbers by one-digit whole numbers and by 10, 100, and 1000, using appropriate tools, including arrays.

Differentiated Instruction and Universal Design for Learning

- Ask to calculate only for a value of $100 or less.
- Provide teams with a list of items with their costs (appendix).
- Elaborate with the student or a small group of students, the steps necessary to accomplish the task. For example, making a list of items to buy, thinking about why people buy those items, searching the Internet for prices, making a list of prices, estimating the total cost, and so on.

For an Extra Challenge

- Ask students to list the advantages and disadvantages of using methods of payment in various contexts.
- Ask students to explain the factors that influenced their purchase decision (for example, quality of materials).
- Have students research the Internet to determine if the prices of various items constitute a good purchase.

Appendix 1 - Playground Equipment for Recess

Set of 3 tennis balls

$6

Inflatable rubber ball

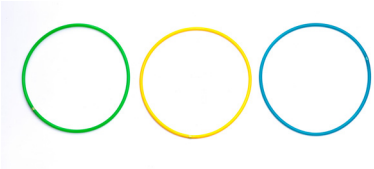
$12

6 scoop ball set

$76

Set of 3 hoops

$24



Set of 6 skip ball jumping rings

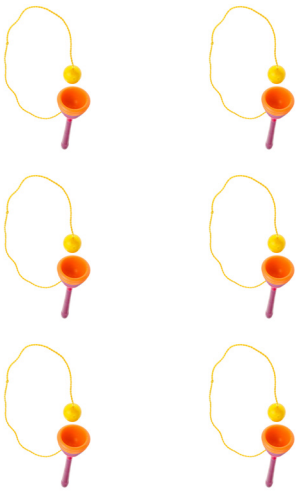
$33

Velcro ball game set

$12

Set of 6 cup and ball game

$20



Rubber bouncing ball

$3

Basketball

$20

Set of items for the playground

- 6 semi-rigid bells
- 6 plastic billiard balls
- 6 skipping ropes (2.4 m)
- 3 skipping ropes (9 m)
- 3 velcro ball game sets
- 6 neoprene flying discs
- 4 Chinese elastics
- 12 flat hoops
- 6 rubber game balls
- 6 rubber bouncing balls

$319

Appendix 2 - Methods of Payment

Learning Situation – Grade 5

Title : I'm Making a Budget!
Duration: Approximately 200 minutes

Overview

In this learning situation, students establish a simple budget in order to reach a financial goal. To do this, students will have to calculate the value of expected income and expenses. They will estimate and calculate the total, including sales taxes, of various purchases. For one of the purchases, the students will determine the lowest unit price from several choices.

Overall and Specific Expectations

Financial Literacy

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

F1.2 Estimate and calculate the cost of transactions involving multiple items priced in dollars and cents, including sales tax, using various strategies.

F1.3 Design sample basic budgets to manage finances for various earning and spending scenarios.

F1.5 Calculate unit rates for various goods and services, and identify which rates offer the best value.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning situation, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals.

It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. Students work and communicate in small groups to establish a simple budget by calculating income and expenses, estimating and calculating the total purchase price of various items (including sales taxes), and determine the best choice using the concept of unit price. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During the Review phase, mathematical conversations may include descriptive feedback from educators as they probe for students' reasoning about their choices when establishing a budget, and the strategies they used to calculate the cost of transactions and the unit prices.

Tools and Representations

By representing the budget and calculating various costs, including taxes, students demonstrate an understanding of the money connected to financial management. The exchange between students about the various choices of tools and representations can contribute to conceptual understanding and provides educators with insight into student learning and thinking. The educator assesses student understanding during this activity and intervene, as required, at appropriate times.

Prior Knowledge and Skills

To be able to complete this learning situation, students must be able to:

- Add and subtract decimals to hundredths.
- Estimate sums and differences of decimals to hundredths.
- Recall multiplication facts up to 12 × 12.

Learning Goals

At the end of this learning situation, the student will be able to:

- Estimate and calculate the cost of transactions involving several items, including sales taxes.
- Establish a basic budget.
- Calculate the unit price of various products.

Possible Success Criteria Based on the Achievement Chart

Knowledge and Understanding

The student demonstrates an understanding of the Harmonized Sales Tax (HST) and its impact on the total cost of a purchase.

The student demonstrates an understanding of unit rate.

The student demonstrates an understanding of the elements of a basic budget.

The student estimates and calculates the total cost of transactions involving several items, including sales taxes.

The student identifies a financial goal as well as income and expenses.

Thinking

The student selects the correct data and appropriate operations.

The student selects strategies for estimating and calculating the total cost of transactions involving multiple items, including sales taxes.

The student selects strategies for managing finances in various situations.

The student chooses strategies to calculate the unit price of various goods and services.

The student interprets the results according to the context presented.

Communication

The student communicates mathematical thinking using financial literacy conventions and vocabulary.

The student justifies their choices using mathematical evidence.

The student organizes their calculations by showing their work.

Application

The student calculates the unit price of various products.

The student estimates and calculates the total cost of transactions involving several items, including sales taxes.

The student creates a basic budget.

Materials

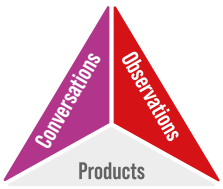
- calculators;
- Canadian play money kit;
- dry-erase markers;
- erasable whiteboard;
- markers;
- chart paper;
- paper;
- Appendix 1 - Scenario;
- Appendix 2 - Miguel's Scenario.

Mathematical Vocabulary

basic budget, expense, income, financial goal, transaction, money, cash, unit price, sales tax

Before Learning (Warm-Up) (20 minutes)

Assessment can be carried out through...



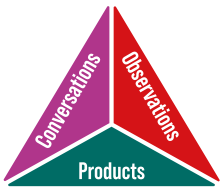
Display these images (Appendix 1 - Scenario) on the interactive whiteboard and ask students to observe them carefully:

Facilitate a discussion with the students, noting the answers on the board or on chart paper.

- What do you notice about these images?
- What words do the images make you think of?
- Are there similarities between the images? Differences?
- If you could choose a theme for these images, what would it be?
- Have you ever seen some elements of the images in your daily life?
- Is it always the same kind of transaction in each image?
- Is there one image you like more than the others? Why?

Active Learning (Exploration) (60 minutes)

Assessment can be carried out through...



- Form teams of two students.
- Provide students with the necessary materials.

Present the following scenario to students:

Over the course of the year, Miguel received $70 as gifts. He earns $20 every time he mows his neighbour's lawn and he receives $5 each time he does household chores.

At some point, he bought a video game from his friend for $25.

For the start of the school year, he wants to buy sneakers, a sweater, a cap and socks. When he searches online for clothing prices, he finds sneakers for $89.99, a sweater for $25.99 and a cap for $18.95. When he gets to the socks section, he finds 2 options that fit his budget. However, he wants to take advantage of the best bargain.

OPTION 1	OPTION 2
	
$12.97	**$10.97**
10 pairs of sport socks	8 pairs of sport socks

He must also take into consideration the addition of the Harmonized Sales Tax (HST).

His parents have told him that he should create a budget to keep track of his income and expenses in order to reach his financial goal.

When will he have enough money to make his purchases?

Make sure that the students understand the task at hand by asking questions such as:

- Who can describe the task in their own words?
- What data is relevant in this situation?
- What is a budget? spending? a financial goal?

Inform the students that during this learning situation, they will have to present and justify their proposed budget for Miguel and the strategies they used to carry out the calculations.

Allow enough time for students to complete the task. Circulate in the classroom and observe the strategies the students use. Support as needed to help some teams progress by asking scoffolded questions (see below).

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
The team has difficulty recognizing useful information.	• Can you explain, in your own words, the task? • What information and or tools could help you solve the problem? • Can you relate this problem to a similar one from your daily life? • How did you solve that problem?
There is too much data, and the team is unable to do the calculations.	• What calculation do you need to make? What strategies or tools might help you? • How might you represent the situation to help you understand it?
The team is unable to create a strategy to calculate the total cost of the transaction(s).	• What manipulatives or mathematical tools can you use to help you solve the problem?

Possible answer

First, I have to determine the price of the socks which represents the most advantageous purchase. For each set of socks, I could have to calculate the unit price (the cost of a single pair of socks).

Option 1

I divide $12.97 by 10. I use my calculator to do the calculations.

$12.97/10 pairs = $1.30/pair*

* I rounded 1.297 to the nearest hundredth. One pair of socks costs $1.30.

Option 2

I divide $10.97 by 8. I use my calculator to do the calculations.

$$\$10.97/8 \text{ pairs} = \$1.37/\text{pair}^*$$

* I rounded 1.37125 to the nearest hundredth. A pair of socks costs $1.37.

Option 1 is the best buy since a pair of socks costs $1.30, 7¢ less than option 2.

Now I have to estimate and calculate the total cost of the items Miguel wants to buy for the start of the school year.

- sneakers for $89.99
- $25.99 sweater
- $18.95 cap
- $12.97 socks

Estimation

$$89.99 + 25.99 + 18.95 + 12.97 \approx 90 + 30 + 20 + 10$$
$$\approx \$150$$

I rounded down the price of the socks since I rounded up all the other items.

To estimate the HST, I round 13% to 15%.

$$15\% = \frac{15}{100}$$

$\frac{15}{100}$ means that for every $100, the HST will be $15.

For the amount of $150, the HST will be $15, plus half of $15, which is $7.50.

$15 + $7.50 = $22.50

I add the two amounts.

$150 + $22.50 = $172.50

I estimate the cost will be less than $172.50 since I have rounded most amounts up.

My calculations

I calculate the actual cost of the items by adding them together.

$$\begin{aligned}\$89.99 + \$25.99 + \$18.95 + \$12.97 &= 90 + 10 + 16 + 20 + 13 - 0.01 - 0.01 - 1.05 - 0.03\\ &= 100 + 36 + 13 - 1 - 0.10\\ &= 136 + 13 - 1 - 0.10\\ &= 149 - 1 - 0.10\\ &= 148 - 0.10\\ &= \$147.90\end{aligned}$$

Using the calculator, I calculate 13% for the HST.

$$\$147.90 \times 13\% = \$19.23$$

$147.90 + $19.23 = $167.13

The total cost of the items Miguel purchases is $167.13.

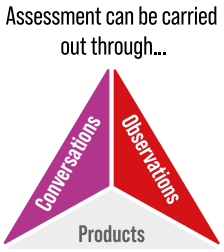
Miguel's financial goal is $167.13.

Now I'm making a budget.

INCOME		EXPENSES		BALANCE
Gift	$70	**Video game**	$25	$70 – $25 = $45
Mowing the lawn **5 × $20 = $100**	$100			$45 + $100 = $145
Household chores **6 × $5 = $30**	$30			$145 + $30 = $175

If Miguel mows the lawn 5 times and does household chores 6 times, he will reach his financial goal of $167.13, since he will have saved $175.

Review (30 minutes)



When teams are finished, have students circulate and observe the other teams' representations.

By highlighting a few examples of students' strategies and specific reflections that are related to the learning goals and the success criteria, lead a mathematical conversation to elicit the strategies and the skills used and the knowledge acquired.

Possible questions include:

- Do all teams have the same strategies? the same budgets? Why?
- Have you noticed similar elements between your calculations and the calculations of the other teams? different elements?
- Do you think you have represented the problem correctly?
- Is your solution logical? Does your solution make sense? Why?
- Do you feel you have met the learning goals?
- How might budgets be helpful to manage finances? What emotions do you feel as you consider both income and expenses?

Following the discussions, ensure that students:

- Recognize the usefulness of estimating the result of a calculation before performing it.
- Understand the concept of unit price.
- Make connections between financial goals, income, expenses and financial decision-making.

Consolidation of Learning

- Determine a financial goal for the class' end-of-year trip. Develop a budget so that you can achieve this goal. Take into account the income you will have during the year as well as the expenses related to the trip.
- As a class, determine a simple budget for a pizza lunch, with dessert, to celebrate a special occasion, including the number of pizzas, drinks, and desserts needed, a tip for delivery, and more. Ask students to estimate the cost to cover lunch.

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B2.2 Recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts.

B2.4 Represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 100 000, and of decimal numbers up to hundredths, using appropriate tools, strategies, and algorithms.

B2.9 Represent and create equivalent ratios and rates, using a variety of tools and models, in various contexts.

Differentiated Instruction and Universal Design for Learning

The activity can be modified to meet the needs of the students.

- Add smaller or larger dollar amounts of money.
- Use the calculator to perform the calculations.
- Determine a fictional financial goal for a scenario and develop a long-term budget.
- Provide a budget that already has certain entries completed and ask the student to complete it using information provided.

For an Extra Challenge

- Suggest that students find ways to save money for certain expenses or consider other ways to reach the financial goal (for example, consider trading clothes).

Appendix 1 - Scenario

Appendix 2 - Miguel's Scenario

Over the course of the year, Miguel received $70 as gifts. He earns $20 every time he mows his neighbour's lawn and he receives $5 each time he does household chores.

At some point, he bought a video game from his friend for $25.

For the start of the school year, he wants to buy sneakers, a sweater, a cap and socks. When he searches online for clothing prices, he finds sneakers for $89.99, a sweater for $25.99 and a cap for $18.95. When he gets to the socks section, he finds 2 options that fit his budget. However, he wants to take advantage of the best bargain.

OPTION 1	OPTION 2
	
$12.97	**$10.97**
10 pairs of sport socks	8 pairs of sport socks

He must also take into consideration the addition of the Harmonized Sales Tax (HST).

His parents have told him that he should create a budget to keep track of his income and expenses in order to reach his financial goal.

When will he have enough money to make his purchases?

Learning Situation – Grade 6

Title : I'm Opening a Student Account!
Duration: Approximately 110 minutes

Overview

In this learning situation, students critically examine and compare student account interest rates and service fees from different financial institutions, researching the best choices for to address specific needs.

Overall and Specific Expectations

Financial Literacy

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

F1.1 Describe the advantages and disadvantages of various methods of payment that can be used to purchase goods and services.

F1.4 Explain the concept of interest rates, and identify types of interest rates and fees associated with different accounts and loans offered by various banks and other financial institutions.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning situation, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals.

It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. In this learning situation, a good time for descriptive feedback is during the Active Learning phase. Students work and communicate in small groups to critically review and compare interest rates and fees related to student accounts of different financial institutions, as well as to research the best choices according to the their needs. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During the Review phase, mathematical conversations may require descriptive feedback from educators as they probe for students' reasoning about their choice of a financial institution to open a student account based on the the individual's needs and by comparing interest rates and fees.

Problem-Solving Tasks and Experiences

In this learning situation, students must critically examine and compare student account interest rates and service fees from different financial institutions, and research the best choices needs, it is a problem-solving experience, that gives students the opportunity to reason, communicate, represent, make connections, and justify thinking. This learning situation has many entry points, and all students will be able to participate and propose solutions using their strategies, as well as their critical and creative thinking. This approach promotes accessibility for all students and the exchange of a variety of mathematical strategies and ideas. This learning situation can be differentiated by using different numbers, making the task accessible yet challenging for the students.

Direct Instruction

Direct instruction involves modelling, refining and extending mathematical concepts and can be used throughout the learning process. As a flexible instructional practice that responds to the diverse needs of students, direct instruction is appropriate given the complexity of the task, which addresses several financial literacy concepts (for example, the advantages and disadvantages of various methods of payment, analysis of interest rates and fees associated with various bank accounts, etc.). Educators are encouraged to take advantage of direct instruction to assess for learning and to adapt interventions based on student participation and feedback. Educators can identify times when certain concepts can be taught explicitly to make it easier for students to solve the problem.

Prior Knowledge and Skills

To be able to carry out this learning situation, students must be able to use the properties of operations and the relationships between operations to solve problems involving percents.

Learning Goals

At the end of this learning situation, the student will be able to:

- Describe the advantages and disadvantages of various methods of payment.
- Explain the concept of interest rates.
- Determine and compare fees associated with different accounts offered by various financial institutions.
- Use data to make persuasive arguments and make informed decisions.

Possible Success Criteria Based on the Achievement Chart

Knowledge and Understanding

The student recognizes the advantages and disadvantages of various methods of payment.

The student identifies types of interest rates and the fees associated with various accounts and loans offered by different financial institutions.

The student identifies and compares the fees associated with different accounts offered by various financial institutions.

Thinking

The student chooses the option that best meets their needs.

The student determines the advantages and disadvantages of various methods of payment.

The student determines the types of interest rates and fees associated with different accounts.

The student selects data to formulate persuasive arguments and make informed decisions.

The student interprets results according to the context presented.

Communication

The student communicates mathematical thinking using financial literacy conventions and vocabulary.

The student explains the concept of interest rates, as well as the fees associated with different accounts and loans.

The student justifies their choices using mathematical evidence.

Application

The student determines the fees associated with different accounts offered by various financial institutions.

The student determines the interest rate on accounts offered by various financial institutions.

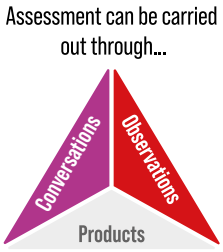
Materials

- calculator;
- Internet access for research;
- chart paper.

Mathematical Vocabulary

interest rate, bank fees, chequing account, savings account, debit card, transaction, deposit, withdrawal, cheque, electronic transfer, payment, plan, rebate

Before Learning (Warm-Up) (20 minutes)

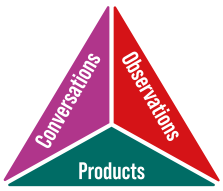


Facilitate a discussion by asking questions such as:

- What is a financial institution? What is its purpose?
- Have you ever visited a bank/financial institution with an adult? What can you tell us about it?
- What are the benefits of having a bank account?
- Which financial institutions are near you?
- What are the similarities and differences between the different bank accounts?
- What financial needs may differ from person to person?
- What types of fees are associated with bank accounts?
- What are other ways to withdraw or deposit money, other than going to the bank or financial institution?
- What is the relationship between financial institutions and online transactions?

Active Learning (Exploration) (60 minutes)

Assessment can be carried out through...



Present the scenario below to the students:

a) In the past three months, you have accumulated $320 by walking your neighbour's dog and $90 by doing yard work. You also have $1430 that you have received as gifts over the past few years. Your parents suggest that you open a student account at one of the financial institutions in your neighbourhood to deposit all your money. Which institution will you choose?

b) Now that you have your own bank account, you go to the mall with your family. You would like to buy yourself a new gym bag in one store, and have a snack while shopping in another store. Back home, you are asked to help buy the gift for a family member by chipping in $25. What methods of payment will you use for your transactions and what are the advantages and disadvantages according to your financial institution?

Make sure that the students understand the task at hand by asking questions such as:

- Who can describe the task in their own words?
- What data is relevant in this situation?
- What is a student account at a financial institution?

Ask students to present and justify their choice of financial institution during the mathematical exchange.

- Form teams of two or three students and display the problem.
- Provide students with the necessary materials.
- Allow enough time for students to complete the task.
- Circulate in the classroom and observe the strategies used by the students. Provide guidance as needed to help some teams progress by providing scaffolded questions, such as:

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
The team has difficulty recognizing useful information.	• Can you explain, in your own words, the task at hand? • What important information and data would help you solve the problem? Where might you find it? • Can you relate to something in your daily life to help solve the problem?

Possible answer

I must, first of all, determine the financial institutions that are in my area. Next, I search the Internet to list the features of student accounts (for example, no monthly fees, no ATM withdrawal fees).

I compare three financial institutions.

LAKE ONTARIO ALLIANCE FUND	LAKE HURON BANK	LAKE SUPERIOR BANK
Account intended for young people aged 18 and under and people aged 19 to 25 who are students.	Account intended for young people aged 18 and under and people aged 19 to 23 who are students.	Account intended for young people aged 18 and under and people aged 19 to 25 who are students.
Chequing account	Chequing account	Chequing account
Free monthly plan	Free monthly plan	Free monthly plan
Unlimited transactions • deposits, withdrawals, cheques Limited transactions • ATM bill payments and transfers: $1.25 per transaction	Unlimited transactions • deposits, withdrawals, payments, transfers Limited transactions • debit card purchases: limit of 5 per day for youths 18 and under	Unlimited transactions • ATM deposits and withdrawals, online transfers and payments, debit card purchases Limited transactions • cheques: $1.25 per transaction • ATM bill payments and transfers: $1.25 per transaction
Withdrawal fees at ATMs other than those of this institution • One free ATM withdrawal from another institution per month. • $2 for each additional withdrawal at an ATM of another institution	Withdrawal fees at ATMs other than those of this institution $3 for each ATM withdrawal from another institution	ATM withdrawal fees other than those of this institution $0
Monthly interest rate 0.05%	Monthly interest rate 0.05%	Monthly interest rate 0.04%
Youth rebate An amount of $15 each year when 7 or more deposits are made in this account.	$150 bonus when you open a student account.	$100 bonus when you open a student account

a) The three student accounts are chequing accounts, which allow me to make financial transactions. There is also interest that is paid, but the interest rates are very low so the interest earned in a year is often only a few cents. I know the interest rates for a savings account are a bit higher, which is still a small amount over a year. However, a savings account does not allow me to make financial transactions.

With a calculator, I determined the interest for the deposit in my account, which is $1570.

MONTH	LAKE ONTARIO ALLIANCE FUND 0.05 %	LAKE HURON BANK 0.05 %	LAKE SUPERIOR BANK 0.04 %
1	$1570.79	$1570.79	$1570.63
2	$1571.58	$1571.58	$1571.26
3	$1572.37	$1572.37	$1571.89

In comparing the three institutions, I would choose Lake Superior Bank because:

- Even if the interest rates are lower, there is almost no difference.
- There are more unlimited transactions allowed than for the other two accounts – deposits, withdrawals, payments, transfers.
- The account is good until I reach 25, if I stay in school.
- There are free unlimited withdrawals at an ATM of another institution, unlike the other two institutions.
- Although the bonus is $50 less than that of the Lake Huron Bank, the difference is minimal considering all the advantages.

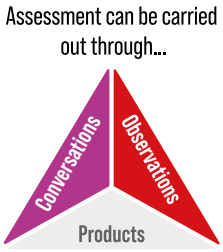
b) Here are my three transactions and the possible methods of payment according to my Lake Superior Bank account:

TRANSACTION	POSSIBLE METHODS OF PAYMENT
Purchase of a new sports bag	According to my bank account: YES • I can use my debit card without service charges since I have enough money in my account. • I can withdraw cash from an ATM at the shopping center, even if it is not an ATM of my financial institution, since there are no fees associated with this type of transaction. NO • I don't have a credit card. • I could do an electronic transfer since it's fast and secure, but the stores don't accept electronic transfers. • I can write a cheque, but there is a bank charge of $1.25 each time I write a cheque. Also, not all stores accept personal cheques.

TRANSACTION	POSSIBLE METHODS OF PAYMENT
Buying a snack	According to my bank account: YES • I can use my debit card without service charges since I have enough money in my account. • I can withdraw cash from an ATM at the shopping center, even if it is not an ATM of my financial institution, since there are no fees associated with this type of transaction. NO • I don't have a credit card and the amount is very small. • I could do an electronic transfer since it's fast and secure, but the stores don't accept electronic transfers. • I can write a cheque, but there is a bank charge of $1.25 each time I write a cheque. The cost of the cheque is too high compared to the cost of the snack.
Money for my brother	According to my bank account: YES • I can do an electronic transfer online with no service fees and I have the app on my cell phone. • I can use cash since the neighbour just paid me cash for walking his dog. • I can go to the Lake Superior Bank and withdraw cash from the ATM since there are no service charges. NO • I can make a transfer from my account at my bank's ATM, but there are service charges.

- Ask the teams to compare their results with those of another team.
- Invite teams to post their work.

Review (30 minutes)



Ask students to share their solution with the class and explain the strategies used to determine which of the three financial institutions best meets their needs.

The other students contribute to the discussion and enrich the mathematical conversation by asking questions to check their understanding.

If necessary, ask questions based on the content of the work displayed:

- Do you think you have represented the problem correctly?
- Is your solution logical? Does your solution make sense? Why?
- Do all teams have the same answer? Why?
- Do you feel you have met the learning goals?
- How did you feel during the exchange of ideas in your team? Did you always agree with other people's ideas? What strategies did you use to respect each member's opinion?

Following the discussions, ensure that students:

- Demonstrate an understanding of the concept of interest rates and fees.
- Recognize the difference between interest rates in different types of bank accounts.
- Compare accounts and selects the option that best meets particular needs.

Consolidation of Learning

- Create an infographic to appropriately represent the advantages and disadvantages of each financial institution.
- Ask some of the teams to explain the difference between a credit union and a bank. Does one institution offer better services than the others for a student account?

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B1.3 Compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts.

B1.4 Read, represent, compare and order decimal numbers to thousandths in a variety of contexts.

B2.1 Use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations.

B2.4 Represent and solve problems involving the addition and subtraction of whole numbers and decimal numbers, using estimation and algorithms.

B2.12 Solve problems involving ratios, including percents and rates, using appropriate tools and strategies.

Differentiated Instruction and Universal Design for Learning

The activity can be modified to meet the diverse needs of the students.

- Provide a table with data from the three financial institutions.
- Ask students to compare two financial institutions.

For an Extra Challenge

- Invite students to compare the differences between student and adult accounts.
- Ask students to reflect on the benefits of opening a bank account despite low or scarce income (as is possibly the case at their age).

Learning Situation – Grade 7

Title : The Family Moves to Canada!
Duration: Approximately 150 minutes

Overview

In this learning situation, students will demonstrate factors that come into play when a family moves to Canada. They will demonstrate the knowledge and skills necessary to make informed financial decisions such as using exchange rates for currency conversion, determining reliable sources of information that can help the family plan and achieve their financial goal and determine the influence that certain social and personal factors may have on financial decision-making. Finally, students will explain the difference between a savings account and an investment account.

Overall and Specific Expectations

Financial Literacy

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

F1.1 Identify and compare exchange rates, and convert foreign currencies to Canadian dollars and vice versa.

F1.2 Identify and describe various reliable sources of information that can help with planning for and reaching a financial goal.

F1.4 Identify various societal and personal factors that may influence financial decision making, and describe the effects that each might have.

F1.5 Explain how interest rates can impact savings, investments, and the cost of borrowing to pay for goods and services over time.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning activity, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria, or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals.

It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. In this learning situation, a good time for descriptive feedback is during the Active Learning phase. Students are presented with a complex real-life situation that includes such elements as factors influencing financial decision-making, currency conversion, identifying reliable sources of information, and choosing a type of account. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During the Review phase, some solutions may require descriptive feedback from the educator to ensure that the student has the necessary support to revise their thinking to apply to a new context.

Problem-Solving Tasks and Experiences

This learning situation, where students must analyze the factors that come into play when a family moves to Canada and must make informed financial decisions, is a problem-solving experience, since it gives students the opportunity to reason, communicate, represent, make connections and justify thinking. This learning situation has many entry points, and all students will be able to participate and propose solutions using their strategies, as well as their critical and creative thinking.

This approach promotes accessibility for all students and the exchange of a variety of mathematical strategies and ideas. This learning situation can be differentiated by using different numbers for the work teams (smaller numbers for a less complex exercise or larger numbers for a more complex exercise), making the task accessible yet challenging for the students.

Math Conversations

By planning lessons like this, which emphasize collaboration and groupwork, the math conversations are ongoing. These conversations allow students to express themselves and react to the mathematical ideas presented. The role of educators will be to ask open-ended, thought-provoking questions to stimulate thinking and allow for multiple responses. This interaction through questioning must be carefully planned to highlight key concepts, skills or specific representations to promote student progress. Educators are encouraged to anticipate students' questions and answers in order to make the exercise even more strategic (for example, by anticipating some common errors). As soon as the learning situation begins, educators should ask questions that are accessible to all students and encourage them to share their ideas in the class group. As students are engaged in solving the problem, questioning and discussion should promote their reasoning and justification as a group and develop their critical thinking. During Review, the questioning should support rich mathematical conversation in the whole group and provide educators with the opportunity to assess student understanding of the concepts being learned.

Prior Knowledge and Skills

To be able to complete this learning situation, students must be able to:

- Explain the concept of interest rates, and identify types of interest rates and fees associated with different accounts and loans offered by various financial institutions.
- Identify and describe various factors that may help or interfere with reaching financial goals.
- Use mental math strategies to calculate percents of 1%, 5%, 10%, 15%, 25%, and 50% of whole numbers and explain the strategies used.
- Solve problems involving ratios, including percents and rates, using appropriate tools and strategies.

Learning Goals

At the end of this learning situation, the student will be able to:

- Convert foreign currencies into Canadian dollars.
- Identify and describe reliable sources of information in order to make a sound financial decision.
- Determine how various social and personal factors can influence financial decision making.
- Explain how interest rates can affect savings and investment over time.

Possible Success Criteria Based on the Achievement Chart

Knowledge and Understanding

The student demonstrates an understanding of the exchange rate from one currency to another and compares them.

The student identifies various sources of reliable information in order to plan and achieve a financial goal.

The student identifies factors that can influence financial decision making.

The student demonstrates an understanding of interest rates for different accounts (savings and investment) offered by a financial institution.

Thinking

The student selects strategies to calculate the exchange rate from one currency to another and solves problems involving interest rates for a savings account and an investment account.

The student evaluates a variety of reliable sources of information.

The student interprets solutions to problems according to the context presented.

The student selects data to formulate persuasive arguments and make informed decisions.

The student assesses personal, family, cultural, and social factors that may influence financial decision making.

The student assesses how interest rates can affect savings and investment over time.

Communication

The student justifies their choices with mathematical evidence, while using the conventions and terminology under study.

Application

The student calculates the exchange rates of different currencies.

The student calculates interest rates for a savings account and an investment account.

Materials

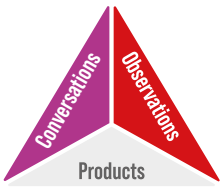
- calculators;
- paper;
- Internet access for research;
- Appendix - Setting the Scene.

Mathematical Vocabulary

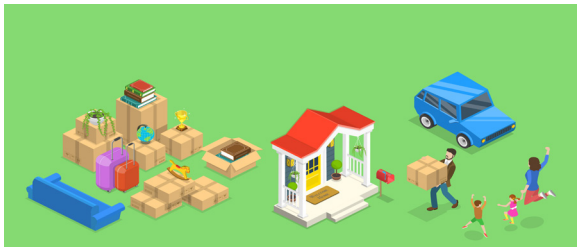
currency, exchange rate, interest rate, loan, mortgage, goods, services, financial institution, savings, investment

Before Learning (Warm-Up) (30 minutes)

Assessment can be carried out through...



Display the following images:

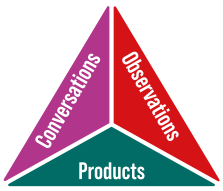


Facilitate a discussion by asking questions such as:

- What words do the images make you think of?
- What do you think people need to think about when they move?
- What do you think people need to think about when they move to another country?
- Are you familiar with the currencies of any other country? How is it different from Canadian currency?
- When you want to buy something, can you research the best brand? How do you decide if the information you find comes from a reliable source?
- What does "investing" mean?
- Why would anyone want to invest?
- What is the difference between short-term and long-term investing?

Active Learning (Exploration) (approximately 60 minutes)

Assessment can be carried out through...



Present the scenario below to the students:

> **Tristano and his family live in Italy. After a long reflection, the family decides to move to Canada, more specifically to Toronto, Ontario, where they have a lot of family. It takes a lot of planning.**
>
> **a) What factors do you think may have influenced their decision to move to Canada? Justify your answers.**
>
> **b) The father decides to take a trip to Toronto to look for a job and a house for their family. They have 900 euros and must change them into Canadian dollars before their big trip. How many Canadian dollars will they be able to receive for their 900 euros with today's exchange rate?**
>
> **c) For the purchase of a house, the father must consult reliable sources of information. In your opinion, what reliable sources of information should they consult before buying a house?**
>
> **d) Tristano's father needs to find a Canadian financial institution to deposit $5000 for Tristano's post-secondary education. Should they open a savings account or an investment account? Justify your reasoning.**

Note: Because students have different experiences and financial situations at home, it is important to encourage "I" talk. Some discomfort may be felt by students who cannot afford, for example, to invest in their post-secondary education. It is the educator's responsibility to ensure that all students can relate to the situation.

Make sure that the students understand the task by asking questions such as:

- Who can describe the task in their own words?
- What data is relevant in this situation?

Ask students to present and justify their solutions during the mathematical exchange.

Form teams of two or three students.

Provide students with the necessary materials.

Allow enough time for students to complete the task.

Circulate in the classroom and observe the strategies used by the students. Provide support as needed to help some teams progress by asking scaffolded questions, such as:

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
The team has difficulty recognizing useful information.	• Can you explain, in your own words, the task at hand? • What important information and data will help you solve the problem? • Can you relate to something in your daily life to help solve the problem?
The student has difficulty identifying the information needed to solve the problem.	• What information would be useful to you? How would you find this information? • Have you searched the Internet for the necessary data? • Do you have enough evidence to support your reasoning? Do you need to collect more?

Possible answers

a) Several factors could influence their decision to move to Canada.

- Economic Factor - Tristano's father or mother may have lost their jobs due to economic changes in their region of Italy. There may be more opportunities in Canada for jobs in their field.
- Family Factor - The family may want to be closer to their relatives in Toronto.
- Social Factor - The family lives in a small community in Italy. In Toronto, the family would have access to much more socialization and services.
- Cultural Factor - This is a new adventure for Tristano's family as they discover a new lifestyle.

b) Tristano's father has to convert 900 euros into Canadian dollars.

In order to determine the current exchange rate, I do an Internet search. Currently, the exchange rate is 1 EUR = 1.32 CAD.

I multiply 900 by the current exchange rate.

$$\begin{aligned} 1 \text{ EUR} &= 1.32 \text{ CAD} \\ 900 \text{ EUR} &= ? \text{ CAD} \\ &= 900 \times 1.32 \\ &= 1184.53 \text{ CAD} \end{aligned}$$

Tristano's father will receive $1184.53 Canadian as a result of the currency conversion.

c) **Tristano's father can consult a few reliable sources of information to help him in the purchase of a house:**

- A financial institution to find out about interest rates on a mortgage loan.
- A real estate agent who knows the area in which he would like to buy a house and who has a good reputation.
- Real estate agency websites to find homes that are for sale in the desired neighbourhood and the price of those homes.
- Family members who live in the desired neighbourhood and who are familiar with the advantages and disadvantages of houses for sale.

d) **I need to calculate the interest based on the interest rates for a savings account and an investment account for the amount of $5000.**

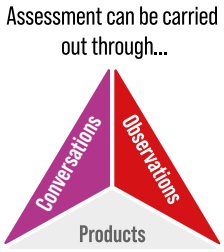
DURATION	SAVINGS ACCOUNT, 4% ANNUAL INTEREST	LONG-TERM INVESTMENT, 10% ANNUAL INTEREST
1 year	$5000 × 4% = $200 $5000 + $200 = $5200	$5000 × 10% = $500 $5000 + $500 = $5500
2 years	$5200 × 4% = $208 5200 + $208 = $5408	$5500 × 10% = $550 $5500 + $550 = $6050
3 years	$5408 × 4% = $216.32 $5408 + $216.32 = $5624.32	$6050 × 10% = $605 $6050 + $605 = $6655

Since this money is for Tristano's post-secondary education, the investment account is the most beneficial with a 10% interest rate. Since the investment account has big advantages over the savings account, it should be seriously considered. This type of account is for long-term financial goals. The savings account is for short-term financial goals.

The investment account can better help the family achieve their long-term financial goals of helping to pay for Tristano's post-secondary education, provided they consider the inability to access these funds for the duration of the investment.

- Ask the teams to compare their results with those of another team.
- Invite teams to post their work.

Review (60 minutes)



Ask the students to share their solution with the class and explain the strategies used to determine the factors that may have influenced Tristano family's decision to move, currency conversion, reliable sources of information and determining the best type of investment for Tristano's studies.

Ask students contribute to the discussion and enrich their mathematical conversations by asking questions to check their understanding.

If necessary, ask questions based on the content of the posted work:

- Do you think you have represented the problem correctly?
- Is your solution logical? Does your solution make sense? Why?
- Do all teams have the same answer? Why?
- Do you feel you have met the learning goals?
- What do you think were the advantages (or disadvantages) of working in a team? Do you know of any strategies that can improve collaboration between team members and group effectiveness?

Following the discussions, ensure that the student:

- Demonstrates an understanding of the concepts of exchange rates and interest rates.
- Recognizes reliable sources of information that can influence financial decision making.
- Recognizes the personal, family, cultural and social factors that can influence financial decision making.
- Recognizes the difference between the interest rate on a savings account and an investment account and the impact over time.

Consolidation of Learning

- Create an infographic to appropriately represent the impact of various interest rates on investments.
- Watch the exchange rates during the week to see the fluctuation and discuss factors that may influence this fluctuation.
- Invite students to do the same learning situation, but imagine moving from Canada to another country of their choice.

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B2.2 Understand and recall commonly used percents, fractions, and decimal equivalents.

B2.3 Use mental math strategies to increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used.

Algebra

C2.3 Solve equations that include multiple terms, whole numbers, and decimal numbers, in various contexts, and verify solutions.

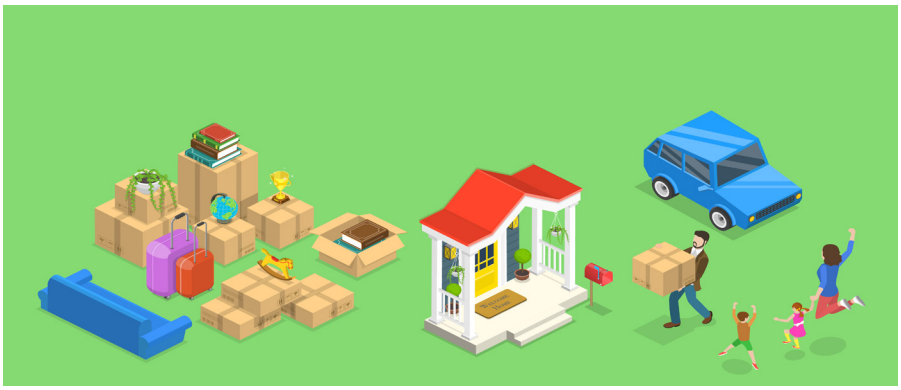
Differentiated Instruction and Universal Design for Learning

- Provide websites to facilitate currency conversion, for example Bank of Canada, Currency Converter.
- Provide a single interest rate to the student to determine the impact on savings.
- With the student or a group of students, break down the task into steps to organize the work to be done. For example, think about the factors that influenced the move, find the exchange rate of euros, and find reliable sources of information to consult when buying a house.

For an Extra Challenge

- Invite students to research and compare the average price of homes in various Canadian cities. Ask them to determine if Tristano's family should consider moving to a city other than Toronto and to justify their reasoning.
- Depending on the chosen city, invite students to include research about financial institutions and the accounts offered.

Appendix - Setting the Scene



Learning Situation – Grade 8

Title : I Want to Go on a Humanitarian Trip!
Duration: Approximately 200 minutes

Overview

In this learning situation, students will create a plan to achieve a long-term financial goal. They will describe various methods of payment that can be used to make foreign currency payments in another country, as well as the different exchange rates and fees that apply. Students will compare the interest rates, annual fees, bonuses, and incentives that two financial institutions offer to determine the best choice.

Overall and Specific Expectations

Financial Literacy

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

F1.1 Describe some advantages and disadvantages of various methods of payment that can be used when dealing with multiple currencies and exchange rates.

F1.2 Create a financial plan to reach a long-term financial goal, accounting for income, expenses, and tax implications.

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.

Preferred High-Impact Instructional Practices in Mathematics

Learning Goals, Success Criteria and Descriptive Feedback

Before beginning this learning situation, it is essential to make the learning goals, based on the curriculum expectations and content, explicit so that they are known and understood by all students. This will ensure that students are aware of the learning goals of the lesson. The success criteria can then be developed and understood through a variety of instructional strategies, such as using examples of student work, co-constructing the success criteria or self-assessing how the criteria have been met. These strategies allow for student engagement and a shared understanding of the steps needed to achieve the learning goals.

It is important to make the learning goals and success criteria visible by posting them in the classroom for students to refer to throughout the lesson. Descriptive feedback related to the criteria provides the specific information students need to achieve the intended learning goals.

By providing descriptive feedback on multiple occasions, educators help students develop the skills to assess their own learning and reflect on the criteria. In this learning situation, a good time for descriptive feedback is during the Active Learning phase. Students should develop a budget to achieve a long-term financial goal, choose a credit card that best suits the situation, and analyze various methods of payment for foreign currency transactions. Students work and communicate in small groups, and, with thoughtful questioning, educators check for understanding and direct students to the criteria to adjust or justify their work.

During the Review phase, some solutions may require descriptive feedback from the educator to ensure that the student has the necessary support to revise their thinking to apply to a new context.

Problem-Solving Tasks and Experiences

This learning situation, where the student must make several combinations of Canadian currency, is a problem-solving experience, as it gives students the opportunity to reason, communicate, represent, make connections and justify thinking. This learning situation has many entry points, and all students will be able to participate and propose solutions using their strategies, as well as their critical and creative thinking.

This approach promotes accessibility for all students and the exchange of a variety of mathematical strategies and ideas. This learning situation can be differentiated by using different numbers for the work teams (smaller numbers for a less complex exercise or larger numbers for a more complex exercise), making the task accessible yet challenging for the students.

Direct Instruction

Direct instruction consists of modelling, specifying and deepening mathematical concepts and can be used throughout the learning process. Being a flexible pedagogical practice that meets the diverse needs of students, direct instruction is required given the complexity of the learning situation, which addresses several concepts of financial literacy (advantages and disadvantages of various methods of payment abroad, long-term financial goals, analysis of interest rates, etc.). Educators are encouraged to take advantage of direct instruction to assess for learning and adapt interventions based on student input and feedback. Educators can identify appropriate times to explicitly teach certain concepts to make it easier for the student to solve the problem.

Prior Knowledge and Skills

To be able to complete this learning situation, students must be able to:

- Identify and compare exchange rates, and convert foreign currencies to Canadian dollars and vice versa.
- Explain how interest rates can impact savings, investments, and the cost of borrowing to pay for goods and services over time.
- Understand and recall commonly used percents, fractions and equivalent decimal numbers.
- Use mental math strategies to increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used.
- Solve equations that include multiple terms, whole numbers, and decimal numbers, in a variety of contexts, and verify the solutions.

Learning Goals

At the end of this learning situation, the student will be able to:

- Develop a plan to achieve a long-term financial goal, taking into account income, expenses and tax implications.
- Describe the advantages and disadvantages of various methods of payment that can be used to deal with a foreign currency and exchange rate.
- Compare interest rates, annual fees, bonuses and other incentives that various credit card agencies offer to determine the best choice.

Possible Success Criteria Based on the Achievement Chart

Knowledge and Understanding

The student demonstrates an understanding of a budget to achieve a long-term financial goal by considering income, expenses, and tax implications.

The student demonstrates an understanding of the interest rates, annual fees, rewards, and incentives of various credit cards offered by different financial institutions and compares them.

Thinking

The student selects strategies for calculating the exchange rate from one currency to another as well as interest rates.

The student evaluates the advantages and disadvantages of various methods of payment with a country's currency and exchange rate.

The student selects relevant data to formulate persuasive arguments and make informed decisions.

Communication

The student justifies their choices and do so using mathematical evidence, while using mathematical terminology related to financial literacy.

Application

The student calculates the exchange rates of different currencies.

The student calculates rewards interest rates, fees, rewards, and incentives for various credit cards offered by different financial institutions.

The student creates a budget to meet the financial goal.

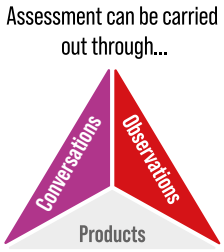
Materials

- calculators;
- paper
- Internet access for research.

Mathematical Vocabulary

method of payment, currency, exchange rate, gross income, net income, fixed expense, variable expense, tax implications, interest rate, premium, credit card

Before Learning (Warm-Up) (40 minutes)

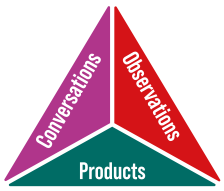


Facilitate a discussion by asking questions such as:

- What does it mean to have a long-term financial goal?
- What does the word "plan" mean? What might a plan look like?
- Why do people have a plan to achieve a financial goal?
- Do you think it is important to have a plan? Why?
- Do you think most people find it easy or difficult to stick to a plan? Why?
- What could happen if you don't make a plan to achieve a financial goal?
- What is an income? What would be sources of income for you?
- Why is it necessary to have an income?
- When someone is paid for their work, are there any payroll deductions? Are these fixed amounts or percents?
- What is the difference between a savings account, a chequing account and a credit card? Why is it important to understand the difference between these accounts?
- How can the exchange rate between foreign currencies be determined?
- Can all methods of payment be used when making transactions involving foreign currencies?

Active Learning (Exploration) (100 minutes)

Assessment can be carried out through...



Present the scenario below to the students:

> During the Grade 8 students' visit to the neighbourhood high school, a group of Grade 12 students presented a slide show of their recent humanitarian trip. Mia is very impressed to see all the work they have accomplished during their stay and the impact on the community in which the group has lived.
>
> Back home, Mia shared with her parents/guardians her hope to participate when she is in grade 12, in 4 years. Her parents/guardians thought it would be a great experience. However, they told her that she needed to start saving her money if she wanted to go on the humanitarian trip, which costs around $5000.
>
> a) Mia plans to have a summer job throughout her high school years. She will work 40 hours for 8 weeks at a salary of $15/hour. Prepare a budget that will allow her to reach her financial goal. Don't forget to include any expenses Mia might incur!
>
> b) Four years later, Mia has a good amount of money in her bank account. Her parents/guardians decide she should have her own credit card. Mia compares the interest rates, fees and incentives offered by two financial institutions in order to make an informed decision. Which institution should she choose?
>
> c) Mia is preparing for her trip. She has $500 to spend on souvenirs for herself, her family and her loved ones while abroad. What are her payment options? What are the advantages and disadvantages of each?

Make sure that students understand the task by asking questions such as:

- Who can describe the task in their own words?
- What data is relevant in this situation?
- Ask students to present and justify their solutions during the mathematical exchange.

Form teams of two or three students.

- Provide students with the necessary materials.
- Allow enough time for students to complete the task.
- Circulate around the classroom and observe the strategies used by the students. Provide support as needed by providing scaffolding questions, such as:

POSSIBLE OBSERVATIONS	POSSIBLE INTERVENTIONS
The team has difficulty recognizing useful information.	• Can you explain, in your own words, the task at hand? • What important information and data will help you solve the problem? • Can you relate this problem to your daily life? How did you solve that problem?
The student has difficulty recognizing the information to be sought.	• Have you searched the Internet for the necessary data? • Do you have enough evidence to support your reasoning? Do you need to collect more? • Have you talked to another person or your team to clarify your question?

Possible answers

a) Mia wants to go on the humanitarian trip in 4 years. I have to prepare a plan for her.

I start by calculating her salary for one summer.

$$40 \text{ hours/week} \times 8 \text{ weeks} = 320 \text{ hours}$$

$$320 \text{ hours} \times \$15/\text{hour} = (320 \times 10) + (320 \times 5)$$

$$= 3200 + 1600$$

$$= \$4800$$

Mia will have a gross income of $4800 per summer. However, you have to take into consideration the expenses. I don't think Mia will have all that money at the end of her 3 high school summers. She will surely have expenses. Also, you have to take into consideration the tax implications, namely what is deducted from the gross income. Mia will only have 2 deductions, taxes and Employment Insurance (EI) which are deducted with each pay cheque. The Canada Pension Plan (CPP) is deducted only for those who are 18 years of age or older. When those amounts are deducted, she will have her net income. That would give her a better idea of how much money she will really have.

I calculate her net income.

The applicable tax rate is 15%.

$$\$4800 \times 15\% = \$720$$

The EI premium rate is $1.58 per $100.

$$\$4800 \div 100 = 48$$

$$48 \times \$1.58 = \$75.84$$

I subtract these 2 amounts from $4800.

$$4800 - 720 - 75.84 = \$4004.16$$

Mia's net income would be $4004.16 per summer.

Here is a sample budget for the summer following Grade 9.

BUDGET (GRADE 9 SUMMER)	
Income	
Salary	$4004.16
Fixed Expenses*	
Bus pass to work ($70 × 2 months)	$140.00
Variable expenses	
Hobbies	$100.00
Other	$75.00
Total expenses :	$315.00
Difference between income and expenses	$3689.16

* If students include annual fixed expenses, such as cell phone charges, encourage them to consider these expenses throughout the year, not just during the summer. This will then have an effect on the budget in the long run.

In this case, Mia has a balanced budget because the difference between her income and expenses is positive. If she follows this budget, she will have $11 067.48 at the beginning of Grade 12.

$$3689.16 \times 3 = \$11\,067.48$$

b) **Mia compares the student credit card of two financial institutions.**

ISHPATINA RIDGE BANK	MONT TIP TOP ALLIANCE FUND
Annual fee $0 Foreign currency conversion fee 2% Purchases 20% Cash advances 22%	Annual fee $0 Foreign currency conversion fee 2% Purchases 19% Cash advances 23%
Points Offer: • Welcome bonus of 12 000 points. • 1 point for every $1 in travel purchases. • 1 point for every dollar spent at eligible gas stations, grocery stores and drug stores. • 1 point for every $2 spent on all other purchases. • 100 points = $1	Offer: • Get a 5% cash back rate for the first 3 months. • Then get: - a 4% cash back rate on grocery purchases - a 2% cash back rate on recurring bill payments - a 1% cash back rate on all other purchases
Travel accident insurance covered up to $100 000	No travel accident insurance coverage

Since Mia is going on a trip, the credit card from Ishpatina Ridge Bank is more advantageous since it offers travel accident insurance and the rates are very comparable to those of the Alliance.

c) **Mia has $500 to spend on souvenirs for herself, her family and her loved ones while she is away.**

She could get some money in the local currency before leaving on her trip.

If, for example, her humanitarian trip is to Jamaica, she considers the exchange rate of that country before she leaves. The exchange rate today, according to the Bank of Canada, is 1 Jamaican dollar (JMD) for 0.0085 Canadian dollar (CAD). I calculate how much Jamaican money she would have for $500 Canadian.

$$\frac{0.0085 \text{ CAD}}{1 \text{ JMD}} = \frac{500 \text{ CAD}}{?}$$

$$500 \div 0.0085 = 58\,983.29 \text{ JMD}$$

Advantages: She can check exchange rates and convert her money when the rate is lower. She won't need to search for a currency exchange booth once abroad. She can make purchases immediately from various merchants in local currency.

Disadvantages: She will have a considerable amount of cash with her when she travels. She could lose it or have it stolen.

She could exchange money when she arrives.

Advantages: Currency exchange kiosks can be very competitive and therefore can offer a good exchange rate. In addition, there is no commission.

Disadvantages: It is not always easy to find currency exchange kiosks that are open at convenient hours. Airport kiosks have higher rates. And finally, if the rate is not to her advantage, she still has to exchange money.

She could use her credit card.

Advantages: It will have the same exchange rate as the Bank of Canada. She would earn loyalty points. She would not have much cash in her possession.

Disadvantages: There is a fee per foreign transaction, in addition to a percentage of the purchase price once the exchange rate has been applied, at the same exchange rate as the Bank of Canada. Some merchants may not accept credit cards.

She could use her debit card to make purchases or withdraw cash from an ATM in the foreign country.

Advantages: Many countries now accept debit cards and she would not have much cash in her possession.

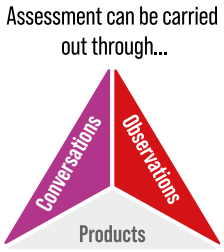
Disadvantages: There are fees to access the foreign network. The company that owns the local ATMs often charges a fee in addition to the Bank of Canada exchange rate. Her debit card must be part of an approved international network. Also, while on humanitarian travel, she may not have easy access to an ATM due to limited services in some environments.

She would make the change before leaving on the trip. This way, there will be no extra charges. She can store her money in more than one place in her luggage, so if she misplaces her money, it won't be the full amount. Once she arrives, she won't have to look for the kiosk with the best exchange rate. She would also avoid the additional costs of using credit or debit cards abroad.

Ask the teams to compare their results with those of another team.

Invite teams to post their work.

Review (60 minutes)



Have students share their solution with the class and explain the strategies they used to determine income, budget, best credit card option, and best method of payment on humanitarian travel.

The other students contribute to the discussion and enrich the mathematical conversation by asking questions to check their understanding.

If necessary, ask questions based on the content of the posted work:

- Do you think you have represented the problem correctly?
- Is your solution logical? Does your solution make sense? Why?
- Do all groups have the same answer? Why?
- Do you feel you have met the learning goals?
- How did you feel during the learning situation? Do you know of any strategies that helped you deal with the different emotions you experienced?

Following the discussions, ensure that the student:

- Demonstrates an understanding of strategies for developing a plan to achieve a long-term financial goal.
- Recognizes the influence of income and expenses on the achievement of a financial goal.
- Recognizes that there are tax implications and taxable benefits to consider when setting a financial goal.
- Analyses different situations and makes recommendations adapted to the situation.
- Demonstrates an understanding of the various methods of payment used for foreign currency transactions.
- Selects a method of payment according to the situation presented and justifies their choice using arguments and calculations.
- Calculates the total cost of converting Canadian money into another currency.

Consolidation of Learning

- Create an infographic to appropriately represent the features of various credit cards offered by different financial institutions.
- Create an infographic to appropriately represent the currencies of various countries and the exchange rate in CAD.

CONSIDERATIONS

Links to Other Curriculum Expectations

Number

B2.3 Use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used.

B2.8 Compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts.

Differentiated Instruction and Universal Design for Learning

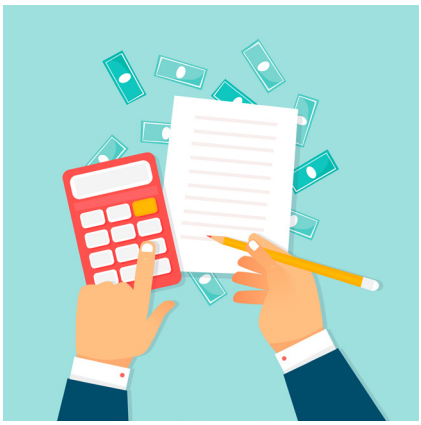
- With a group of students, develop the sequence of important steps in the learning situation to understand where to start; for example, find Mia's total income per summer, subtract payroll deductions, subtract her expenses, calculate the net amount for one month.
- Provide websites to compare credit cards in Canada, for example: Top 10 Best Credit Cards for Canadian Students.

For an Extra Challenge

- Have students incorporate annual expenses into the budget.
- To cover certain annual expenses, ask them to find other solutions to maintain a balanced budget and increase the chances that Mia will reach her financial goal (for example, find other sources of income than a summer job or reduce certain bills by comparing offers from various companies).

Extensions

Financial Literacy and Other Mathematics Strands



Financial literacy instruction can easily be integrated with other strands in mathematics. It is possible, and even necessary, to make connections with certain strands such as in Number, for example, the concept of quantity comparison, mental math strategies; in Algebra, for example, equality situations, variables, coding with spreadsheets; or in Data, for example, collecting, representing and analyzing data related to finance. Currency, being a unit of measurement, also applies to the Spatial Sense strand.

This integration with other strands requires careful planning in order to prepare learning situations while questioning the effectiveness and relevance of the activities or projects that will be done in class. Integration also allows for the review of concepts throughout the school year to ensure in-depth learning. This allows students to better understand the importance of financial literacy in their daily lives. Mathematical modelling can be a means of integrating financial literacy with other mathematical strands. The models that students choose to solve real-life situations will make it easier to integrate financial literacy concepts.

Interdisciplinarity in Financial Literacy

It is important to provide multiple opportunities to help students understand that financial literacy is part of their daily lives and can be easily integrated into other subjects. Here are some examples of how financial literacy can be integrated into other subjects.

In physical education, financial literacy can help students develop budgets for equipment purchases and apply for grants for school sports teams. The criteria for a good purchase can also determine whether certain equipment or structures are better than others, even if they cost more.

Texts related to financial literacy concepts can be chosen and reading strategies can be worked on. Conducting research during learning situations allows students to use their reading knowledge to find the information they need to make informed choices.

When teaching about money transactions, sales, purchases, or financial investments, writing can be incorporated by having students create posters or write short pieces with a specific intent. A math journal allows students to write by making regular entries to record their ideas, observations, and predictions.

Financial literacy can be integrated into music lessons when it comes to purchasing instruments or funding bands (for example, a wind band). Budgets can also be used to allow groups to travel to inter-school competitions, for example. The concept of royalties for musical pieces or the purchase of sheet music can also lead to interesting discussions about expenses (and income) that are less well known in this field.

Important links can be made between consumption and the reduction of biodiversity on Earth, as well as with the ecological footprint that humans leave on the planet by consuming more and more. In addition, there is an interesting reflection to be made between the processes and the research approach as well as the costs to execute a project.

In social studies, students in some grades will compare the cost of living in the past with the cost of living in the present, as well as the methods of payment used, such as bartering between First Nations communities and colonizing countries. Financial literacy also touches on topics such as the impact of human activities on the transformation of the environment. Later, students will also study the economic development of various countries around the world, including Canada, and analyze economic factors related to inequalities in the quality of life, over-consumption in industrialized countries, and the economies of developing countries.

Any opportunity that promotes the teaching of financial literacy and its integration into real-world learning situations allows students to learn the essentials of money concepts and financial management while building consumer and civic awareness.

Financial Literacy at the Heart of our Daily Lives

Financial literacy is important for everyday life. Money is essential for survival. It is used to meet basic needs (housing, food, clothing) as well as other needs related to well-being, which leads to spending. It is important that children understand this reality and that they learn about and begin to develop financial management skills and to consume responsibly.

Financial literacy concepts are now being taught as early as in Grade 1 to raise awareness about the importance and role of money in everyday life. It is important to allow students to experience learning situations that are connected to real-life such as managing a small fictional budget for a specific context, as this will help them develop critical thinking skills as they consider the factors and variables necessary to make informed choices. Eventually, these students will work their first jobs, giving them experience in the working world while earning a pay cheque. While it can be exciting to receive money as a gift, stipend, or pay cheque, it is important that children are aware of the options available. Students will need to understand the value of money, question career choices, and the impact of their career on their salary and lifestyle.

Regardless of their chosen employment path, it will be necessary for young people to have the knowledge to fully understand the payroll system, income tax, retirement plan and deductions for all other services and insurance. Students will also need to be able to manage a budget in a healthy and balanced manner in relation to bills, rent/mortgage, and loan payments. Students will also need to be aware of salary negotiations, possible increases in their annual income, and opportunities for career advancement. It is therefore essential for them to have a good knowledge of financial literacy knowledge and skills in order to build a solid foundation for a healthy and balanced financial life.

Possible Careers Related to Financial Literacy

Financial literacy education provides opportunities to explore a variety of careers. Students can explore jobs related to accounting, finance, human resources (for example, compensation), sales, entrepreneurship (for example, business, franchising), and economics (for example, actuarial, stock market). It is important to encourage students to research various options related to financial literacy, especially since financial literacy is constantly evolving given the advent of new technologies (for example, cryptocurrency).

Sources

Mathematics curriculum (2020) online or in PDF version

Strand Overview, Grades 1 to 8: F. Financial Literacy

Guides to Effective Instruction

High-Impact Instructional Practices in Mathematics

Long-Range Plans

Financial Literacy Resources (AFEMO)

Littératie financière : Portée et enchaînement des attentes et des contenus d'apprentissage, 4e à la 8e année (2016)

Littératie financière : Portée et enchaînement des attentes et des contenus d'apprentissage, 9e à la 12e année (2016)

Make Change that Counts: National Financial Literacy Strategy 2021-2026

Edusource - Find Resources