

# Curriculum Planning & Assessment Resource

## Mathematics Grade 3



**The Consortium**

Alberta Professional Learning Consortium



# Curriculum Planning & Assessment Resource

## Mathematics

### Grade 3 Number 1

#### About This Document

This Curriculum Planning & Assessment Resource is intended to be a collection of sample activities, assessments, and resources that teachers may wish to use as they develop their unit plans. This document is not intended to be a sequential list of activities. Rather, the intent is that teachers choose from this resource what is appropriate for their context, and sequence it in their planning.

The sample activities, assessments and resources included in this document have undergone an initial review to determine appropriateness and alignment to the curriculum. However, it is expected that teachers use their professional judgment in selecting activities, assessments and resources that are appropriate for their context.

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#### Acknowledgements

**Thank you to all the teachers, numeracy specialists, and technical expertise from Alberta school divisions and APLC who collaborated to develop, review, and revise these planning and assessment documents to support curriculum implementation.**

# Grade 3 - Number 1

## Organizing Idea

Number: Quantity is measured with numbers that enable counting, labeling, comparing, and operating

## Guiding Question

How can place value support organization of numbers?

## Learning Outcome

3N1 Students interpret place value to 100 000.

## Summative Assessment(s) - Transfer *(In Progress)*

*Summative assessments can include the following.*

- *Understanding/making sense of a novel context from the real world using one or more concepts (eg. "How are place value and money related?).*
- *Understanding/making sense of a novel context using one or more understandings (eg. Students use money to model the conversion of base 10 values and relate them to base 10 block').*
- *Being able to describe why (linking concepts) something is true, a result, or what might be an extension using learned concepts and understandings.*
- *Apply learning (create products; undertake projects; taking action such as creating a campaign) in a novel context or taking action using the understanding(s).*
- *Construct arguments by taking a position and verifying/proving it with known understandings.*

## Summative Assessment(s)

[\[understanding surface vs deep vs transfer\]](#)

[3N1 Piggy Bank Mystery](#)

[3N1 Building a Number](#)



Click to jump!

## KUSP 3N1

[Literature Connections](#)

# KUSP 3N1

### Assumable Curriculum / Prerequisite Knowledge / Vocabulary

Awareness of coin/bill names and values. Students can compose and decompose quantity within 100 by 10's. Awareness of number line as a tool.

Digit; Number; Numeral; Equal (meaning & symbol); Equality; Unequal (meaning & symbol); Addition (meaning & symbol); Subtraction (meaning & symbol)

#### Student Language | Essential vocabulary & concepts

- **Place value:** the value of each digit in a number
- **Value:** the numerical worth or amount
- **Round:** to write a number in a simpler form (e.g., 37 rounded to the nearest 10 is 40)
- **Coin:** a small, flat, round piece of metal used as money
- **Bill:** a piece of paper used as money
- **Collection:** a group of items that do not necessarily share a common attribute
- **Greater than:** more than (when comparing two quantities)
- **Less than:** not as many as (when comparing two quantities)

#### Pre-Assessments

##### Nelson Pre-Assessment 3: Finding Each Students Pathway

- Skip Counting - p.2
- Estimating - p.3
- Numbers to 1000 - p.4
- Building and Breaking Numbers Apart - p.5
- Comparing Numbers to 1000 - p.6

##### Nelson Pre-Assessment 4: Finding Each Students Pathway

- Numbers to 10 000 - p.2
- Rounding - p.3
- Comparing Numbers to 10 000 - p.4

*Nelson Leaps and Bounds* pages will be referenced in the Assessments to follow up for emerging learners.

#### Learning Recovery

- *Please consider sharing any great activities and ideas you have!*

#### I Know Statements | Metacognition

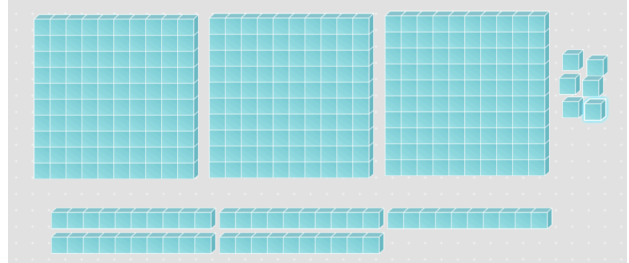
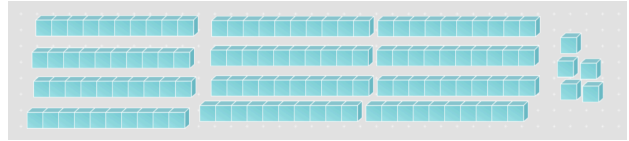

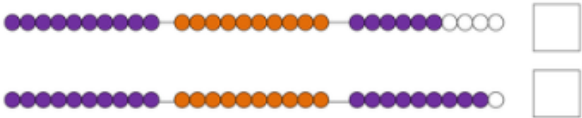
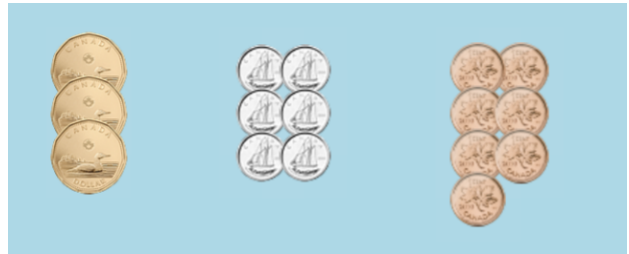
- I know how to find the value of a digit in a number using a place value chart.
- I know I use place value when I read and write numbers greater than 9.
- I know a number can be rounded when an exact answer is not needed.
- I know that the dollar sign, \$, is placed to the left of the dollar value in English and to the right of the dollar value in French.
- I know the cent sign, ¢, is placed to the right of the cent value in English and in French.
- I know that place value can be used to compose a number in different ways.
- I know that for a natural number, each place is 10 times the value of the place to its right.
- I know that for a natural number, each place is 10 times smaller than the value of the place to its left.
- I know < means less than, > means greater than and = means equality.

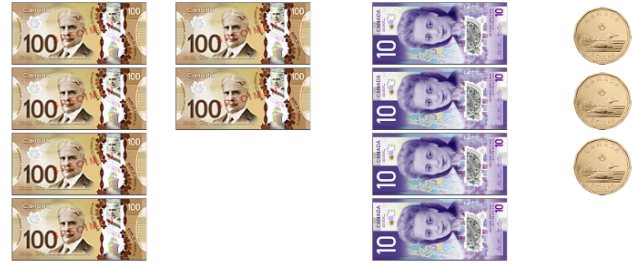
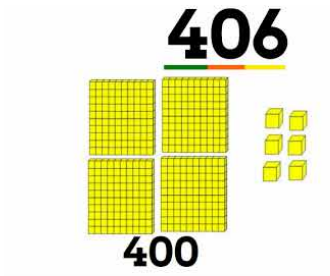

#### I Can Statements | Skills

- I can represent a number in many ways (e.g., expanded form, numerical form, written form, using Base Ten Blocks, using money).
- I can determine the value of each digit in a natural number.
- I can compare and order natural numbers.
- I can use >, <, = symbols, as well as words, to compare numbers.
- I can round numbers when an exact count is not needed.
- I can count and represent the value of a collection of loonies, toonies, and bills as dollars.
- I can count and represent the value of a collection of nickels, dimes, and quarters.

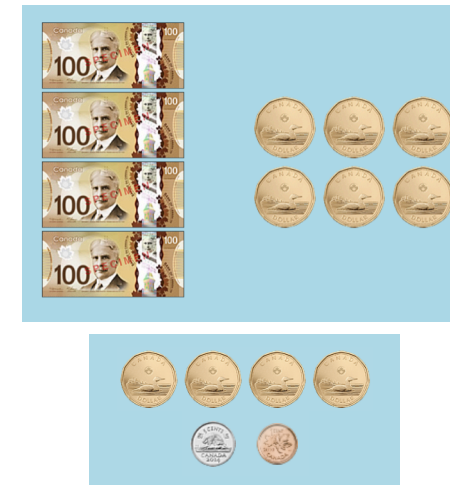
#### Enhancement

- *Please consider sharing any great activities and ideas you have!*

Learning Outcome					
3N1 Students interpret place value to 100 000.					
Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Illustrative Examples	Assessments ( <a href="#">Explainer</a> )
<p>For numbers in base-10, each place has 10 times the value of the place to its right.</p> <p>The digits 0 to 9 indicate the number of groups in each place in a number.</p> <p>The value of each place in a number is the product of the digit and its place value.</p> <p>Numbers can be composed in various ways using place value.</p> <p>Numbers can be rounded in contexts where an exact count is not needed.</p> <p>The less than sign, &lt;, and the greater than sign, &gt;, are used to show the relationship between two unequal numbers.</p> <p>A zero in the leftmost place of a natural number does not change the value of the number.</p> <p>The dollar sign, \$, is placed to the left of the dollar value in English and to the right of the dollar value in French.</p> <p>The cent sign, ¢, is placed to the right of the cent value in English and in French.</p>	<p>Place value is the basis for the base-10 system.</p> <p>Place value determines the value of a digit based on its place in a number relative to the ones place.</p> <p>Place value is used to read, write, and compare numbers.</p>	<p><b>Identify</b> the place value of each digit in a natural number.</p>	<p><b>In a base-10 number system, each place has a value. The value of a digit is determined by its place within the entire number. Place value is used to communicate numbers greater than 9.</b></p>	 <p>How many? What is the expanded notation?</p>  <p>How many?</p> <p>Using the beaded number line. Each bead string is 100 beads, putting 10 strings together shows 1000.</p>  <p>Count by 10's (each colour), 100's (each string).</p>   <p><b>300 + 60 + 9 = 369 cents</b></p>	<p><a href="#">3N1 Identifying Place Value - Surface</a></p> <p><a href="#">3N1 Place Value - Surface/Deep</a></p>

		<p><b>Relate</b> the values of adjacent places.</p>	<p><b>Identify and determine, using manipulatives (counters, Base Ten Blocks, Digi Blocks, money (loonie, \$10, \$100)), the place and value of each digit in a given natural number with all the digits the same (e.g., for 222, the first digit represents the hundreds position and has a value of two (two hundred counters), the second digit represents two tens (twenty counters), and the third digit represents two ones (two counters)).</b></p>	<p><b>Represent the following number using \$100, \$10, and \$1.</b></p> <p style="text-align: center;"><b>643</b></p>  <p><b>22 222</b></p> <p><b>Identify and build this number. What is the value of the highlighted number?</b></p>	<p><b>3N1 Relate the Values of Adjacent Places</b> - Surface and Deep</p>
		<p><b>Express</b> natural numbers using words and numerals.</p>	<p>Express a given natural number in words and with numerals including 0. Model the number using proportional (base ten) and non-proportional (money) materials.</p>	 <p><b>406</b></p> <p><b>400</b></p> <p>Write this number in words. Build this number with base ten blocks.</p>	<p><b>3N1 Words and Numbers - Surface</b></p>
		<p><b>Determine</b> the value of each digit in a natural number.</p>		<p>money (loonie, \$10, \$100)</p>  <p>The value of the dollars is \$423.</p>	<p><b>3N1 Writing Numbers - Surface and Deep</b></p>

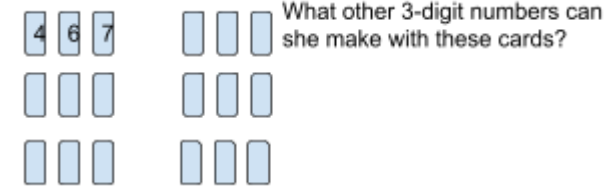
Use money to represent this number. 406¢ or \$406



**Express** various compositions of a natural number using place value.

Create as many different 3-digit numerals as possible, given three different digits; progressing up to 6-digit numerals.

4 6 7 Julie has made a 3-digit number with these cards



What other 3-digit numbers can she make with these cards?  
 What is the largest number she can make?  
 What is the smallest? Can you put them in order from largest to smallest?

Game can be played in pairs (with cards or dice), winner is who gets the smallest or largest number (determine before game starts)

1 932

Create a list of numerals that you can make with the digits of the number.

Progress to 6 digit numbers

How many ways can you compose this number using loonies, 10's and 100's

**743 dollars**

7 (100 dollar bills) + 43 (loonies) = 743

Or

7 (100 dollar) + 4 (10 dollar bills) + 3 Loonies)= 743

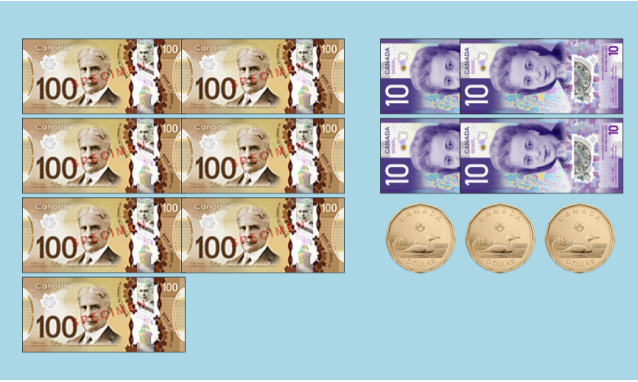
7 hundreds, 4 tens, 3 ones

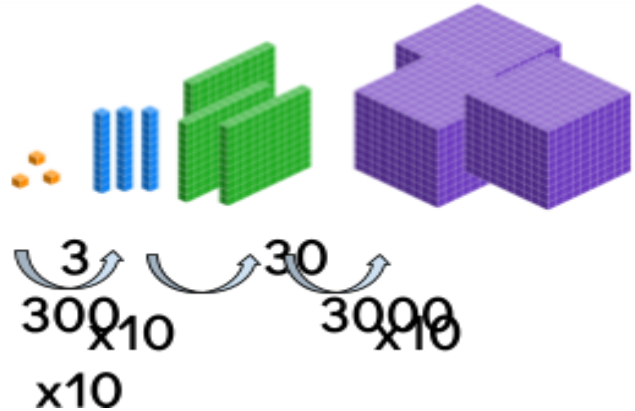

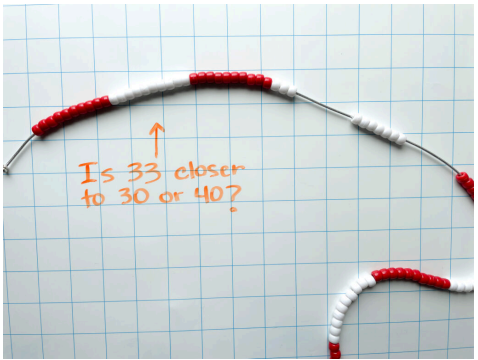
**3N1 It's a Mix Up - Deep**


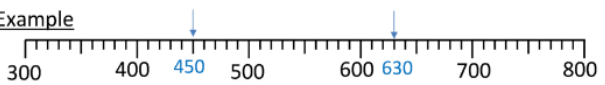


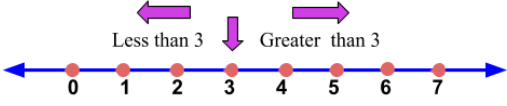
**Expressing Numbers - Surface**  
 Express 567 in tens and ones.  
 Ans: 56 tens and 7 ones

Express 743 in hundreds and ones.  
 Ans: 7 hundreds and 43 ones

Express 245 698 in expanded form  
 200 000 + 40 000 + 5 000 + 600 + 90 + 8

					
		<p><b>Compare and order</b> natural numbers.</p>	<p>Order a set of numbers in ascending or descending (<b>not in vocabulary list, nor in curriculum</b>) order.</p>	<p>Put your list of numbers in ascending order. Put your list of numbers in descending order. (least to greatest, greatest to least)</p>	<p><a href="#">3N1 Compare and Order Natural Numbers</a> - Surface/Deep</p>
		<p>Compare the quantity of numbers according to their place value</p>		<p style="text-align: center;">756    398</p> <p>Use place value to compare these two numbers. If you have 10 sets of beaded number lines in the classroom, have a student stand at 398 and one stand at 756 to compare the numbers.</p>	
		<p><b>(Knowledge)</b> For numbers in base-10, each place has 10 times the value of the place to its right.</p>	<p><b><i>The place value system is based on a pattern of 10. Each place value increases ten times the value to the place on its right and decreases ten times the value to the place on the left.</i></b></p>	<p style="text-align: center; font-size: 2em; color: #add8e6;">Multiples of 10</p> <p style="text-align: center;"> <math>30 = 3 \times 10</math>  <math>300 = 3 \times 100</math>  <math>3000 = 3 \times 1000</math> </p> <p> <math>7 \times 1 = 7</math>  <math>7 \times 10 = 70</math>  <math>7 \times 100 = ?</math>  <math>7 \times 1000 = ?</math>  <math>7 \times 10000 = ?</math>  <math>7 \times 100000 = ?</math> </p>	<p><a href="#">3N1 Place Value Meaning</a> - Deep <a href="#">3N1 Place Value</a> - Surface</p>
			<p>Identify the multiplicative patterns in place value ( tens = 10 x ones, hundreds = 10 x tens OR hundreds = 100 x ones)</p>	<p style="text-align: center;">362</p> <p>The 2 is 2 ones or <math>2 \times 1</math>, the 6 is 6 groups of ten or <math>6 \times 10</math>, the 3 is 3 groups of 100 or <math>3 \times 100</math></p>	

				<p>So with each place to the left is 10x more than the adjacent digit.</p>  <p>Or show the base 10 system using money</p> 	
			Using place value express composition of number in multiple ways		
			Illustrate different symbolic representations of money		
		<p><b>Round</b> natural numbers to various places.</p>	Place a given number on a number line and explain how to determine the nearest ten or hundred.	<p>34 582</p> <p>Place this number on a number line. What is the nearest ten? What is the nearest hundred?</p>  <p>Use an open number line. Where would you put 33, between 0 and 100?</p>	<p><a href="#">3N1 Round Natural Numbers - Surface/Deep</a></p> <p><a href="#">3N1 Numbers in a Box - Exit Ticket</a></p>

					
			Round natural numbers to various places.	<p><b>Example</b></p>  <p>450 to the nearest 100 is 500      630 to the nearest 100 is 600</p>	
	<b>Count and represent</b> the value of a collection of nickels, dimes, and quarters as cents.	Count the value of a given collection of coins in cents.	 <p>Skip count by 5's, 10's and 25's</p> <p>What is the value in cents?</p>	<a href="#">3N1 Money in cents</a> - Surface/Deep	
	<b>Count and represent</b> the value of a collection of loonies, toonies, and bills as dollars.	Count and represent a given dollar value using loonies, toonies, and bills.	 <p>What is the dollar value?</p>	<a href="#">3N1 Collections of Dollars</a> - Surface	
	<b>Express</b> the relationship between two numbers using $<$ , $>$ , or $=$ .	Represent less than and greater than amounts on a number line.	 <p><math>1 &lt; 3</math>, <math>6 &gt; 3</math></p>	<a href="#">3N1 Relationships Between Numbers</a> - Surface/Deep	
	<b>Recognize</b> French and English symbolic representations of monetary values.		<p>In an English document, use the symbol Can\$ to represent the Canadian dollar.</p> <p>Can\$25.99 or CAD\$25.99</p>	<a href="#">3N1 Money - French and English</a> - Surface	

In a French document, use the symbol \$ CA

25,99 \$ CA

[Translation Bureau](#)

## Resources

### Mathology

[APLC Math Little Books for Alberta Curriculum](#)  
[Mathology Free Resources on New Learn Alberta](#)

#### Mathology Little Books

Mathology Little Book: [How Numbers Work](#)

Mathology Little Book: [Finding Buster](#)

Mathology Little Book: [Fantastic Journeys](#)

Mathology Little Book: [Math Makes Me Laugh](#)

Mathology Little Book: [The Street Party](#)

#### Links to Other Grades

Mathology Little Book: [The Money Jar \(2\)](#)

Mathology Little Book: [A Class-full of Projects \(2\)](#)

Mathology Little Book: [Back to Batoche \(2\)](#)

Mathology Little Book: [The Great Dog Sled Race \(2\)](#)

#### Mathology Activities/Other Resources

Mathology Grade 3: Number Unit 1, Counting: Activity 1

Mathology Grade 3: Number Unit 2, Number Relationships: Activity 6

Mathology Grade 3: Number Unit 3, Place Value: Activity 12

Mathology Grade 3: Number Unit 7, Financial Literacy: Activity 34

Learn Alberta: [Math 3-Counting Money](#)

#### Links to Other Grades

Mathology Grade 4: Number Unit 1, Number Relationships and Place Value: Activities 1-4

#### Mathology Interactive Tools:

- [Counters](#)

- [Place-Value Blocks](#)

- [Money](#)

- [Model with a Number Line](#)

- [Hundred Chart](#)

### Math UP

#### Skip Counting

- o Lesson 1: Skip Counting by 3's and 4's
- o Lesson 2: Counting Forward
- o Lesson 3: Counting Backwards

#### Representing Whole Numbers

- o Lesson 1: Representing Four-Digit Numbers Using Thousands, Hundreds, or Tens
- o Lesson 2: Representing Four-Digit Numbers Using Thousands, Hundreds, Tens, and Ones
- o Lesson 3: Writing Numbers in Words
- o Lesson 4: Comparing Representations of Four-Digit Numbers
- o Lesson 5: Using Information About Numbers to Learn More About Them

#### Estimating and Comparing Whole Numbers

- o Lesson 1: Using Benchmark Numbers to Estimate
- o Lesson 2: Comparing and Ordering Four-Digit Numbers
- o Lesson 3: Using Estimates to Solve Problems

#### Money

- o Lesson 1: Counting Money
- o Lesson 2: Representing Amounts of Money

<p><b>Existing Textbooks</b></p> <p><b>Math Focus 4</b> could be used to transition students to 100 000 through the study of 10 000. Chapter 2, Numeration p.32-48</p> <p><b>Math Makes Sense 4</b> could be used to transition students to 100 000 through the study of 10 000. Unit 2, Lessons 1-3</p>	<p><b>NCETM (teacher guides and resources)</b></p> <p><a href="#">NCETM - Composition and calculation: 100 and bridging to 100</a> (Spine 1; Year 3; 1.17)</p> <p><a href="#">NCETM - Composition and calculation: three-digit numbers</a> (Spine 1; Year 3; 1.18)</p> <p><a href="#">NCETM - Composition and calculation: 1000 and four-digit numbers</a> (Spine 1; Year 4; 1.22)</p> <p><a href="#">NCETM - Composition and calculation: multiples of 1000 up to 1000000</a> (Spine 1; Year 5; 1.26)</p>
<p><b>Websites/Other</b></p> <p><a href="#">Beaded Number Line</a>, YouTube, Dr Nicki Newton</p> <p><a href="#">Kentucky Intervention Guide KNP</a> - provides great lessons and activities (outcomes based) for Teachers K-3</p> <p><a href="#">Mathematics Developmental Continuum</a> - Indicators of Progress Tasks/Activities (Australia)</p>	<p><b>Websites and Resources to Support <i>Planning</i></b></p> <p><b>Inclusion</b> - An <a href="#">inclusive</a> approach to maths teaching</p> <p><b>Inclusion</b> - <a href="#">Good Practices</a> on Inclusive Curricula in Mathematics Sciences</p> <p><b>Differentiation:</b> Preview vocabulary and pre teach to students. Use various forms of media to present vocabulary including simplified explanations, visuals in the form of diagrams to label and connect concepts.</p> <hr/> <p><b>Resources Developed by School Divisions/Educational Institutions</b></p> <p><a href="#">Edmonton Catholic Pacing Guides</a></p> <p><a href="#">Edmonton Catholic Curriculum Crates</a></p> <p><a href="#">LearnAlberta Curriculum</a></p> <p>APLC <a href="#">Curriculum Professional Learning Resources</a></p> <p>Alberta Teachers Association Library <a href="#">General Mathematics Resources</a></p> <p>Mathematics and Numeracy - <a href="#">Curriculum Implementation Toolkit, Grades 4-6</a></p>
<p><b>Indigenous Lesson Plans and Resources</b></p> <p><a href="#">Indigenous Culture Based Learning in Alberta Curriculum</a></p>	<p><b>Gizmos</b></p> <p>New Learn Alberta (Teacher Login Required)</p> <p><a href="#">Cargo Captain (Multi-digit Subtraction)</a></p> <p><a href="#">Modeling Whole Numbers and Decimals (Base-10 Blocks)</a></p> <p><a href="#">Number Line Frog Hop (Addition and Subtraction)</a></p> <p><a href="#">Whole Numbers with Base-10 Blocks</a></p> <p><a href="#">Rounding Whole Numbers (Number Line)</a></p> <p>For access to additional resources, request a Gizmos account <a href="mailto:alberta@explorellearning.com">alberta@explorellearning.com</a></p>



# Literature Connections

Title	Author	Format (Picture Book, Novel, Non-fiction, other)	Publisher	ISBN	Notes
Cavern of Clues: Be a hero! Create your own adventure to uncover Black Beard's gold	David Glover	Picture Book	QEB Publishing; Reprint edition (September 1, 2016)	1682970078, 978-1682970072	Mathematical mystery
Missing Math: A Number Mystery	Loreen Leedy	Picture Book	Two Lions; Illustrated edition (Feb. 17 2015)	9781477810927, 978-1477810927	Mathematical mystery
Animals by the Numbers: A Book of Infographics	Steve Jenkins	Nonfiction	Clarion Books; Illustrated edition (Nov. 1 2016)	9780544630925, 978-0544630925	Comparing, ordering, <,>=
More M&M's Math	Barbara Barbieri McGrath	Picture Book	CHARLESBRIDGE PUBLISHING (Sept. 1 1998)	0881069949, 978-0881069945	***Multiple number concepts (estimation, simple graphing, multiplication, factoring, problem-solving, division, and simple fractions)
Sir Cumference and All the King's Tens	Cindy Neuschwander	Picture Book	Charlesbridge; Illustrated edition (July 1 2009)	1570917280, 978-1570917288	Place value
The King's Commissioners	Aileen Friedman	Picture Book	Scholastic Press (March 1 1995)	0590489895, 978-0590489898	Place Value