Conceptual Curriculum Map (CCM) for Grade 1

Content Area: Mathematics Course: Bridges in Mathematics Grade Level: Grade 1

Math Transfer Goals:

TG1: Analyze and model mathematical relationships in authentic and varied contexts, make informed decisions, and draw conclusions.

TG2: Persevere, think strategically/flexibly, and reflect and revise thinking in order to solve complex problems.

TG3: Construct viable arguments, critique the reasoning of others, and communicate ideas precisely using the language of mathematics

TG4: Share diverse ideas and perspectives, ask questions, and respectfully engage with peers while working towards a common goal.

Global Competency Transfer Goals (CT: Critical Thinking; CO: Collaboration; CI: Creativity & Innovation):

CT.1: Students will be able to analyze and evaluate evidence, arguments, claims and beliefs to draw conclusions, make informed decisions, and solve problems.

CT.2: Students will be able to reflect on their own thinking when presented with alternative points of view, and revise and/or reconsider their thinking.

CO: Students will be able to respectfully engage with others in constructive and critical dialogue, and take the initiative needed to accomplish a shared goal.

CI: Students will be able to exhibit curiosity, imagination, flexibility, and perseverance in order to innovate and make valuable contributions to the community.

Math Learning Progressions (not yet updated w/ MLC unit references)

Unit 1 Numbers all Around Us	 Long-Term Outcomes/Transfer Goals: TG1: Analyze and model mathematical relationships in authentic and varied contexts, make informed decisions, and draw conclusions CT2: Students will be able to reflect on their own thinking when presented with alternative points of view, and revise and/or reconsider their thinking 		
	Standards Assessed	Conceptual Overview	Rationale
Focus & Timeframe	1.OA.5 (D)- Relate counting to addition and subtraction	Establish classroom standards around exploring	Children need a strong number foundation to
Development of		and communicating about	develop the intuitions and

within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten; decomposing a number leading to a ten, using the relationship between addition and subtraction; and creating equivalent but easier or known sums 1.NBT.1 (I) - Count to 120, starting with any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral 1. Students will use the concept of subtitizing to see numbers inside of larger numbers than 120. In this range, read and write numerals and represent a number of objects with a written numeral 1. Students will use the concept of subtitizing to see numbers inside of larger numbers than 120. In this range, read and write numerals and represent a number of objects with a written numeral 1. Students work with nonstandard units to measure various distances and lengths. 1. Students work with nonstandard units to measure various distances and lengths. 1. Students work with nonstandard units to measure various distances and lengths. 1. Students work with nonstandard units to measure various distances and lengths. 1. Students work with nonstandard units to measure various distances and lengths. 1. Students work with nonstandard units to measure various distances and lengths. 1. Students work with nonstandard units are use for the continued developement of number sense. They also introduce the measurement concept that will be developed throughout the Bridges program. 1. Standards Assessed conceptual Overview with alternative points of view, and revise and/or reconsider their thinking. 1. Standards Assessed conceptual Overview with alternative property of emmetal of this noti of the structure of number subtractions and is centrally a well rounded sense of number sold subtraction and is centrally a well rounded sense of numbers and ten-frames, and students read five and ten	number sense and	1.OA.6 (I)- Add and subtract	numbers.	skills required for operationa	
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eveloping strategies addition to add mathematically, leaving of the structure of number		1 1 1 1 1		is fundamental to this notion	
	Developing strategies	1		of the structure of numbers	
n auding and the permitted of the permit	for adding and		behind a "calculation by		

subtracting single-digit numbers within 10

(20 days)

1.0A.4 (D) - Solve subtraction problems by finding an unknown addend

1.0A.5 (D) - Solve addition problems by counting on

1.0A.6 (I) - Add fluently with sums to 10

1.0A.8 (I) - Solve for the unknown in an addition or subtraction equation involving 3 whole numbers

1.NBT.3 (D) - Use >, =, and < symbols to record comparisons of two 2-digit numbers

counting" mentality for a more nuanced, structured approach to addition and subtraction.

It asks students to identify, select, and implement efficient strategies that resonate with their intuitions about mathematics and, in this case more specifically, number combinations.

This unit helps children develop confidence with efficient, effective, and sensible strategies for adding and subtracting single-digit numbers.

Students explore such strategies as counting on, combining small groups of numbers within larger numbers, building from known facts, using doubles facts to solve other addition problems, counting by 5s and 10s, and using the commutative property.

Students are encouraged to view the equal sign as a way to indicate that two expressions are of equal value, not as a symbol that precedes "the answer."

Develop strategies for adding and subtracting single-digit numbers in ways that are connected to their natural reasoning. Once students understand this, they can begin to reason algebraically as they find unknown values that make a given equality statement true

The relational view of equality is perhaps the most important algebraic concept to be learned in the early grades, making it possible for young children to solve for unknown values in an equation.

Addition is often thought of as either increasing a given amount (adding some number to an existing quantity), or as the joining of two distinct sets. In contrast, subtraction is often thought of as "taking away" or, perhaps more subtly, the "difference" between two sets.

Understanding the relationship between addition and subtraction is foundational to developing strategies for adding and subtracting single-digit numbers in ways that are connected to students' natural reasoning.

Unit 3 Adding, Subtracting, Counting & Comparing

Long-Term Outcomes/Transfer Goals:

• **TG1:** Analyze and model mathematical relationships in authentic and varied contexts, make informed decisions, and draw conclusions.

		e able to analyze and evaluate draw conclusions, make infor	_
	Standards Assessed	Conceptual Overview	Rationale
Focus & Timeframe Developing strategies for adding, subtracting, and comparing quantities up to 20 (20 days)	1.OA.1 (D) - Solve addition and subtraction story problems with sums and minuends to 20 involving situations of adding to, putting together, taking away, and comparing, with unknowns in all positions 1.OA.4 (D) - Solve subtraction problems by finding an unknown addend 1.OA.6 (D) - Add and subtract fluently within 10 1.OA.8 (D) - Solve for the unknown in an addition equation involving 3 whole numbers 1.NBT.1 (D) - Represent a number of objects with a written numeral up to 120 1.NBT.2 (D) - Demonstrate an understanding that the digits in a 2-digit number represent amounts of tens and ones 1.NBT.2a (D) - Demonstrate an understanding that 10 can be thought of as a bundle or group of 10 ones, called a ten 1.NBT.2b (D) - Demonstrate an understanding that numbers from 11 to 19 are composed of a 10 and some more ones	The focus is relationships between numbers, combinations of numbers, number patterns, and a small collection of models that elicit such understanding. Mastery of key number facts and fact strategies for single-digit addition and subtraction. Emphasizes the concept of part-part-whole reasoning. Students are expected to be confident in number facts up to 10 and comfortable with number families to 20.	Understanding mathematical relationships is preferable to memorizing them. Important to focus on how students make mathematical meaning and the power of mathematical representations and models. The ability to subitize is central to a well-rounded sense of numbers and operational fluency in general Knowledge of part-whole relations is useful in problem contexts that involve either combining or separating numbers. Part-part-whole understanding leads students to see that the part is distinct from the whole without losing sight of the whole as it relates to its component parts

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	1.NBT.4 (D) - Add a 1-digit number and a 2-digit number		
Unit 4	Long-Term Outcomes/Transfer	r Goals:	
Leapfrogs on the Number Line	 TG1: Analyze and model mathematical relationships in authentic and varied contexts, make informed decisions, and draw conclusions. 		
	 CT.1: Students will be able to analyze and evaluate evidence, arguments, claims and beliefs to draw conclusions, make informed decisions, and solve problems. 		
	Standards Assessed	Conceptual Overview	Rationale
Focus & Timeframe	1.0A.8 (D) - Solve for the	Students locate numbers on	The number line helps
	unknown in an addition or	a number line, use their	students develop greater
Open and closed	subtraction equation	reasoning skills and number	flexibility in mental
number lines are a	involving 3 whole numbers	sense to determine unknown	arithmetic as they actively
model for adding and		values, and explore addition	construct mathematical
subtracting within 20	1.NBT.1 (D) - Count to 120, starting with any number less	and subtraction.	meaning, number sense, and understandings of number
(20 days)	than 120, including 0 or 1	Students develop a solid footing in counting, addition,	relationships.
	1.NBT.1 (D) - Read and write numerals to 120	and subtraction within the range of 0–120.	When counting to 100 and beyond, passing a decade number (10, 20, 30, and so
	1.NBT.4 (I) - Add a 1-digit number and a 2-digit number. Add a multiple of 10 (up to 80) and another 2-digit number. Use strategies based on place value, properties of operations, or the relationship between addition and subtraction to add with sums to 100	The focus is on the number line as a model both to represent numbers and to add and subtract them using multiples of 1, 5, and 10.	on), and counting backward are obstacles for students. So, It's important to equip students with many opportunities to choral count forward and backward by 1s, 5s, and 10s as well as opportunities to visualize our number system.
	1.NBT.5 (I) - Mentally find the number that is 10 more or 10 less than a given 2-digit number, without counting 1.NBT.6 (I) - Use concrete models or drawings to subtract a 2-digit multiple of 10 from an equal or greater		For children to be able to calculate by structuring, they must be able to see the essential building blocks of our number system, and they must have a firm grasp of the base ten system, through which very predictable patterns emerge.

2-digit multiple of 10. Use strategies based on place value, properties of operations, or the relationship between addition and subtraction to subtract a 2-digit multiple of 10 from an equal or greater 2-digit multiple of 10

Unlike discrete grouping models, the number line is instrumental in helping students visualize number relationships and also use those visualizations in the act of counting and calculating.

Unit 5 Geometry

Long-Term Outcomes/Transfer Goals:

- **TG1:** Analyze and model mathematical relationships in authentic and varied contexts, make informed decisions, and draw conclusions.
- CT.1: Students will be able to analyze and evaluate evidence, arguments, claims and beliefs to draw conclusions, make informed decisions, and solve problems.

Conceptual Overview

Focus & Timeframe

Identifying, describing, constructing, drawing, comparing, composing, and sorting two-dimensional shapes

(20 days)

- Standards Assessed

 1.G.1 (M) Distinguish
 between defining attributes
 (e.g., triangles are closed and
 three-sided) versus
 non-defining attributes (e.g.,
 color, orientation, overall
 size); build and draw shapes
 to possess defining
 attributes.
- **1.G.2** (M) Create a composite shape by composing two-dimensional shapes and three-dimensional shapes
- 1.G.3 (M) Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares

The emphasis is squarely on shapes—identifying, describing, constructing, drawing, comparing,

Students learn about fractions in the context of two-dimensional shapes.

composing, and sorting

them.

A variety of shape-sorting activities are offered to help first graders understand that some of the things they observe about two- and three-dimensional shapes, such as number of sides or faces, number of vertices or corners, curved or flat surfaces, are properties that define those shapes.

Rationale

According to the van Hieles theory (and students pass through certain levels) instruction must begin at a student's current level and provide many years of visual and exploratory work before moving into formal deductions.

Experience with shapes, terms, and geometry-related concepts is the greatest single factor influencing advancement through the levels of geometric understanding.

Activities that encourage children to explore, talk about, and interact with content at the next level, while increasing their experiences at the current level, have the best chance of advancing their thinking.

	T	1	
	creates smaller shares.		The fact that some pattern blocks are whole-number multiples of others makes it possible for young students to develop early understandings about measuring area. Studying algebra and geometry at any grade level helps to build the thinking skills of logic, deductive reasoning, analytical reasoning, and problem solving. Another connection is that geometry allows us to build and use visual models for algebraic operations
Unit 6	Long-Term Outcomes/Transfe	Coole	for algebraic operations.
Figure the Facts with Penguins	 TG3: Construct viable arguments, critique the reasoning of others, and communicate ideas precisely using the language of mathematics CT.1: Students will be able to analyze and evaluate evidence, arguments, claims and beliefs to draw conclusions, make informed decisions, and solve problems. CO: Students will be able to respectfully engage with others in constructive and critical dialogue, and take the initiative needed to accomplish a shared goal. 		
	Standards Assessed	Conceptual Overview	Rationale
Addition and subtraction to 20	1.OA.1 (M) - Solve addition and subtraction story problems with sums and minuends to	During this unit students continue to develop fluency with addition and subtraction facts to 10 and	Number rack explorations help students develop comfort with certain number facts as well as key strategies
(the unit more	20 involving situations of	strategies for working with	for addition and subtraction.
frequently emphasizes addition)	adding to, putting together, taking from, taking apart,	facts to 20.	Applying usoful strategies
(20 days)	and comparing with unknowns in all positions	Students make extensive use of the number rack to model	Applying useful strategies that go beyond 1s counting.
, , ,	1.0A.4 (M) - Solve subtraction problems by finding an unknown addend	and solve number combinations and story problems of all types.	As students grapple with this number family in all its additive iterations, they make the natural
	1.OA.6 (M) - Add and subtract with sums and minuends to 20. Add and subtract fluently with sums	They learn how to write and solve equations that involve unknowns in all positions and determine whether addition and subtraction equations	associations to subtraction. This approach solidifies an understanding of what it actually means to add or to subtract—to combine or to
	I CHATRACT THIODTIN WITH CHMC	I and clintraction equations	I SUNTRACT—TO COMPINA OF TO

		1	т	
	to 10	are true or false.	separate.	
	1017/10			
	1.OA.7 (M) - Demonstrate an	Students see the relationship		
	understanding that the equal	between addition and		
	sign indicates equivalence.	subtraction operations,		
	Determine whether addition	particularly within a specific		
	and subtraction equations	number context.		
	are true			
	1.0A.8 (M) - Solve for the			
	unknown in an addition or			
	subtraction equation			
	involving 3 whole numbers			
Hait 7		r Goole:		
Unit 7	Long-Term Outcomes/Transfer		ns in authoritis and varied	
One Hundred &	•	odel mathematical relationshi	•	
Beyond	contexts, make infor	med decisions, and draw cond	ciusions.	
,	- TC2 Canala al Cald			
		e arguments, critique the reas	_	
	communicate ideas p	precisely using the language o	f mathematics	
	 CT.1: Students will be able to analyze and evaluate evidence, arguments, 			
	claims and beliefs to	draw conclusions, make infor	med decisions, and solve	
	problems.	problems.		
	Standards Assessed	Conceptual Overview	Rationale	
Focus & Timeframe	Standards Assessed 1.NBT.1 (M) - Count to 120.	Conceptual Overview Continue to develop deep	Rationale Research has indicated that	
Focus & Timeframe	1.NBT.1 (M) - Count to 120,	Continue to develop deep	Research has indicated that	
	1.NBT.1 (M) - Count to 120, starting with any number less	Continue to develop deep understandings of numbers	Research has indicated that students with a solid	
Addition and	1.NBT.1 (M) - Count to 120,	Continue to develop deep understandings of numbers to 120 -estimate, count,	Research has indicated that students with a solid understanding of 1, 2, 5, and	
Addition and subtraction of	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both	
Addition and	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1.	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks &	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit	
Addition and subtraction of	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks &	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line.	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that reinforce students'	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is comfortable counting by 1s,	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that reinforce students' understandings of place	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is comfortable counting by 1s, 2s, or 5s, there's no number	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that reinforce students' understandings of place value within the range of	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is comfortable counting by 1s, 2s, or 5s, there's no number she cannot conceptualize	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that reinforce students' understandings of place value within the range of 0–120 and that fosters	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is comfortable counting by 1s, 2s, or 5s, there's no number she cannot conceptualize easily.	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that reinforce students' understandings of place value within the range of 0–120 and that fosters confidence with addition and	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is comfortable counting by 1s, 2s, or 5s, there's no number she cannot conceptualize easily. Discrete counting models are	
Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that reinforce students' understandings of place value within the range of 0–120 and that fosters confidence with addition and subtraction strategies within	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is comfortable counting by 1s, 2s, or 5s, there's no number she cannot conceptualize easily. Discrete counting models are closely tied not only to	
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Addition and subtraction of two-digit numbers	1.NBT.1 (M) - Count to 120, starting with any number less than 120, including 0 or 1. Read and write numerals to 120 1.NBT.4 (M) - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a	Continue to develop deep understandings of numbers to 120 -estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line. An emphasis on models that reinforce students' understandings of place value within the range of 0–120 and that fosters confidence with addition and subtraction strategies within this range. The number line, a	Research has indicated that students with a solid understanding of 1, 2, 5, and 10 readily develop both formal and informal strategies for two-digit operations, particularly when those intervals are illustrated and manipulated on the open number line. If a child is comfortable counting by 1s, 2s, or 5s, there's no number she cannot conceptualize easily. Discrete counting models are closely tied not only to important place value	

two-digit numbers, one adds 10s, is also used throughout The use of the number line tens and tens, ones and the unit. ones; and sometimes it is as a computational tool is a necessary to compose a ten Central to these mental connection to algebraic reasoning that should not be manipulations is a strong 1.NBT.5 (D) - Mentally find sense of place value—how missed. It introduces symbols the number that is 10 more our number system works, that have mathematical or 10 less than a given 2-digit how predictable patterns can value, a significant step number, without counting help us navigate number toward algebraic reasoning. contexts, and how strategies 1.NBT.6 (D) - Subtract a that work with small Students must grapple with 2-digit multiple of 10 from an numbers are scalable to the beginnings of algebraic equal or greater 2-digit larger numbers. structure and symbolic multiple of 10 language in the context of what would otherwise be simpler number equations. **Long-Term Outcomes/Transfer Goals: Changes, Changes TG2:** Persevere, think strategically/flexibly, and reflect and revise thinking in order to solve complex problems. CT.2: Students will be able to reflect on their own thinking when presented with alternative points of view, and revise and/or reconsider their thinking. Standards Assessed Rationale **Conceptual Overview Focus & Timeframe** 1.NBT.1 (M) - Represent a This unit integrates math and Because the open number number of objects with a science, through activities line is so closely related to Consider the concept written numeral up to 120 that involve measurement, the measuring tools students of change from data analysis, and computing use throughout, and draws several different 1.NBT.3 (M) - Compare pairs the amount of change, or the on their counting strategies of 2-digit numbers difference, between and skills, it is a model that quantities. makes sense to many first (<20 days) graders. It is also a model **1.NBT.4** (R/E) -Add a multiple of 10 (up to 80) and another Students have many used heavily in second grade, 2-digit number. Use concrete opportunities to measure as students continue to distance with nonstandard develop number sense to models or drawings and strategies based on place units, develop further 1,000 as well as increasingly value, properties of understanding of place value efficient strategies for adding operations, or the as they count cubes arranged and subtracting 2- and 3-digit

much like a number line, find

the difference between pairs

compile and interpret data in

a real-world context rich with

of flight distances, and

meaning for them.

relationship between

add with sums to 100

addition and subtraction to

1.NBT.5 (M) - Mentally find

the number that is 10 more

number, without counting

or 10 less than a given 2-digit

Unit 8

angles

numbers.

An algebraic function is a

relationship between two

variables in which the value

of one variable, often called

the output, depends on the

value of the other, often called the input. This

1.NBT.6 (M) - Subtract a	encourages them to search
2-digit multiple of 10 from an	more actively for patterns; to
equal or greater 2-digit	look for the relationships
multiple of 10	between the input and
	output numbers rather than
1.MD.2 (M) - Express the	simply noting the patterns of
length of an object as a	increase.
whole number of length	
units, by laying multiple	
copies of a shorter object	
(the length unit) end to end;	
understand that the length	
measurement of an object is	
the number of same-size	
length units that span it with	
no gaps or overlaps.	
1.MD.3 (M) -Tell time to the	
hour on an analog clock	
1.MD.4 (M) - Interpret data	
with up to 3 categories, and	
answer questions about the	
data point	