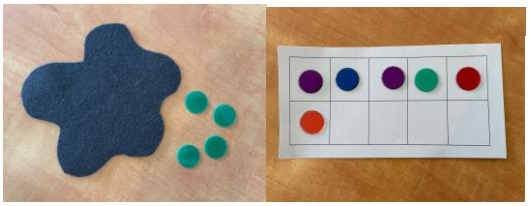
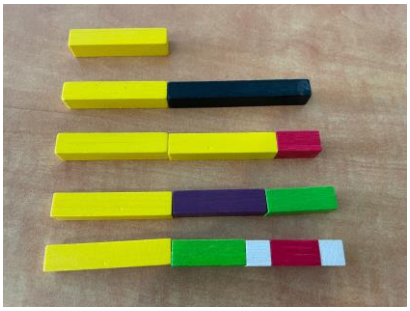
COASTMETRO

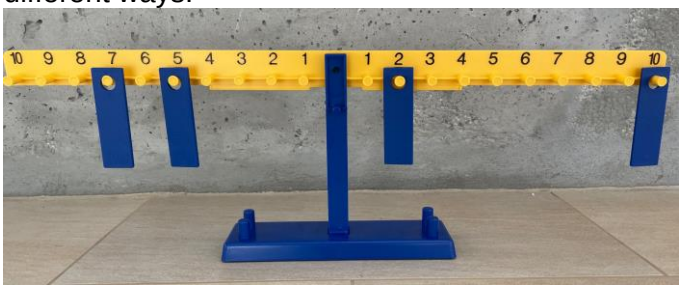
ELEMENTARY MATH PROJECT

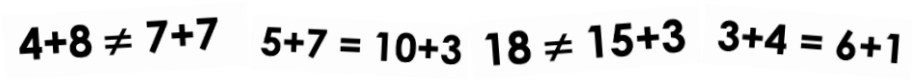
Grade 1
Patterning and Algebra
Key Number Concept 1: Change, Equality & Inequality
Sample Week at a Glance

This week of lessons could occur part way through the school year, once students have had some experiences exploring numbers to 20 through counting, composing and decomposing as well as being introduced to the concepts of addition and subtraction. This week of lessons focuses on algebraic thinking and the concepts of change, equality and inequality, experienced through different models, contexts, tools, and materials.

Monday	Read the story Splash! by Ann Jonas, stopping to have students count the number of animals in the pond from page to page. Ask students at one point, *What has changed from this page to this page?* (showing illustrations). *How many more/less animals are in the pond now?* Model a "change in quantity" story with a story mat (felt or paper) and materials. For example, *"Raccoon noticed five fish in a pond and some swam away when they saw the raccoon. Now the raccoon could only see two fish. How many fish swam away?"* Invite students to visualize the change and share their thinking verbally. Ask students to create their own stories that involve a change in quantity, including the posing of a problem to solve. This is an opportunity for students to create stories connected to their daily lives, community, or culture.  Sharing Stories: Invite students to share their story with a partner and have the partner solve the change problem and then reverse roles. Gather the students together and ask them to share and reflect on how stories helped them think about the math they were doing.
Tuesday	Open with Splat! using projected slides or paper splat and dot magnets on whiteboard. Focus on a single splat and quantities from 5-20. Have students share the different strategies they use to solve for the missing part/unknown. Model how to record as an equation such as 12= 8+___.

	Introduce or review the meaning of the equality and inequality symbols. Math Workshop (students choose tasks) -ten frames and dice: have students roll a die and place that number of counters on the ten frame and then state how many more counters are needed to change that number to 10 -splat mats; have students work in partners to create splats for each other to solve using felt or paper splats and counters -equality and inequality symbol cards: using numbers and materials, have students create true equations or representations using symbol cards Small Group Instruction: In groups of two or three, show students a quantity of 7 tiles or blocks. Ask them to visualize what they need to do to make the quantity 10, then to make the quantity 8 and then 12, asking different students to verbally explain their thinking after each change.  = ≠ Sharing Circle: Invite students to share what they practiced today or something new that they learned.
Wednesday	Set out tubs of Cuisenaire rods for students to explore. Ask students to share what they found out about the rods and record their findings on a chart or a whiteboard, such as “Each rod is one longer than another” or “There are 10 different rods.” Create some task cards for students to explore the concepts of change, equality and inequality with Cuisenaire rods. Some examples include: -What different ways can you make ten? -Choose a five rod (yellow). What different rods can you add to it to change the value/quantity to 12? -What different combinations of rods could make this equation true? 8 + _____ = 17 -Use printed equality and inequality symbols to create equations using Cuisenaire rods. 

	Provide tubs of rods at tables for students to investigate the prompts with. Provide math notebooks or small whiteboards for students to record their findings or equations. Students could also use the digital Cuisenaire rods on Mathigon or NRICH to represent the mathematics they are exploring. Closing Discussion: Choose one of the tasks and invite students to share the different strategies they used to solve the question and think about change, equality or inequality. Ask students to consider new strategies they might be hearing that they can use next time when they are using Cuisenaire rods.
Thursday	Do Puzzles 1-4 on SolveMe Mobiles together as a class, having students turn and talk in partners or small groups before sharing their solutions. Introduce the physical number balance to the students, showing them how to balance or create equivalence on each side by adding weights in different ways. Show how once balanced - for example, 3 and 4 on one side and 6 and 1 on the other side that if you add 5 to one side, you can add 2 and 3 to the other side to keep it balanced. Play with the idea of keeping the balance in balance in different ways.  Math Workshop (students choose tasks) -number balance: students create balanced equations on the number balance and record them using symbols and numbers in their math notebook or on small whiteboards -equality and inequality symbol cards: using numbers and materials, have students create true equations or representations using symbol cards -if available, you could set up a small set of iPads or tablets to SolveMe Mobiles and have student solve those puzzles together -Cuisenaire rods: create balanced equations using Cuisenaire rods and recording the equations in math notebooks or small whiteboards Small Group Instruction: continue build and change assessment tasks from Tuesday Closing Discussion: Ask students to turn and talk to a partner or small group about what materials and tools are supporting their thinking about change, equality and inequality. Invite a few students to share their reflections to the whole group.
Friday	True or False: Share a few different equations (using equality and inequality symbols) on the whiteboard or chart and have students discuss whether they are true or false, explaining and justifying their responses using mathematical reasoning.

	 Ask students to record up to 10 true equations using the equality and inequality symbols (five of each) in their math notebooks or small whiteboards. Have students exchange their list with a partner to “check” and confirm that they are true. (Teacher note: notice the flexibility and fluency with numbers that students demonstrate when creating equations.) Students may then choose a practice task from the week such as creating change in quantity stories, splats, using the number balance, change to 10 with ten frames, etc. Sharing Circle: Invite students to reflect on this week’s learning and share something they feel they learned more about and share a personal goal for this area of mathematics.

You may focus the following week or two of lessons on addition and subtraction fluency and connecting some of the ideas, materials and tools from this week for practicing addition and subtraction in new ways.