

## ELEMENTARY MATH PROJECT

### Grade 1

#### Key Number Concept 4:

#### Adding and Subtracting Numbers to 20

#### Sample Week at a Glance

Focus this week: making ten to add; addition (joining) story problems and using the making 10 strategy to solve the story problem.

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| <b>Monday</b>  | <p><b>Pairs that Make Ten</b></p> <p>Show students a ten-wand made using multi-link cubes (5 of one colour connected to 5 of another colour). Pretend you're clumsy and 'accidentally' break it. Show the two parts and ask the class what they notice. They should notice the two parts that make ten (eg. 7 and 3), but also notice that the 7 is 2 more than 5 and perhaps that the 3 is 2 less than 5.</p> <p>Have the class make their own ten wands, and ask them to explore different ways they can 'break' their wand into two parts. Ask them to record what they discovered using pictures and numbers.</p> <p>Share, discuss, and record the different pairs of numbers that make ten, then re-arrange them in order (ie. 1+9, 2+8, ...). Ask the class if they see any connections between these. For example, they may notice that they can change one pair into another by moving one cube from one part to the other.</p> |
| <b>Tuesday</b> | <p><b>Number String: Using Ten</b></p> <p>Use two magnetic ten frames (or draw them on a white board), and write the expression <math>10 + 4</math>. Ask the class how you could model the sum using the ten frames (ie. fill one frame and put 4 counters in the other), and ask what is the sum and how they know.</p> <p>Number strings are a series of expressions which are intended to develop a concept. They are presented and thought about one at a time, and each stage connects to the previous stage, but pushes the thinking further.</p> <p>Provide double ten-frames and counters for pairs of students. For each problem in the number string below, ask them to build, model, and record the sum, then have a class discussion. Encourage them to build each new expression from the previous one rather than starting over each time.</p>                                                                             |

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|                  | <ul style="list-style-type: none"> <li>• <math>6 + 10</math></li> <li>• <math>10 + 6</math></li> <li>• <math>9 + 7</math></li> <li>• <math>8 + 8</math></li> <li>• <math>8 + 7</math></li> </ul> <p>Share and discuss how 10 (a full ten frame) was helpful to think about for each expression.</p>                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Wednesday</b> | <p>Before: Do a numberless word problem as a class (join type) to think about meaning of story problem before working with numbers</p> <p>Students practice join problems using ten-frames</p> <p>Closing: Can students come up with a joining story problem and share it with the class?</p>                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Thursday</b>  | <p>Before: Do a numberless word problem as a class (join type) to think about meaning of story problem before working with numbers</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Friday</b>    | <p>Number Talk: Invite students to solve a joining story problem. Discuss strategies and see if anyone made 10 to add.</p> <p>Math Workshop:</p> <ul style="list-style-type: none"> <li>- Students are given a collection of numberless word problems and have to determine which of them are joining problems. Students can then insert their own numbers and solve.</li> <li>- Students practice making 10s to add using ten-frames</li> <li>- Students work with ten-wands to practice the pairs that make 10</li> </ul> <p>Closing: Have a discussion about what students learned about story problems this week and how 10 can help them solve the problems.</p> |

In the following weeks and months, students will develop more familiarity with making ten to add and story problems, including:

- More problem types
- Explore the strategy using a number line
- Develop it as a mental math strategy
- Make decisions about when it is a useful strategy in comparison to other strategies

They will also continue exploring and developing other strategies as they build understanding at a concrete level towards number line representations and mental math.