

10 by playing *Make 10* and *Tens Go Fish*. The Classroom Routine *Today's Number* provided another opportunity for practice.

Students in Grade 2 used Addition Cards to think about combinations they knew and to practice those they did not yet know. Over the year, students collected a set of Addition Cards for each category and sorted them into two envelopes: “Combinations I Know” and “Combinations I Am Still Working On.” Students wrote clues on these cards to help them remember the combinations they found difficult.

In Grade 3, students again use Addition Cards (M24–M28) as they review the addition combinations. At the beginning of Investigation 2, they sort these cards as they did in Grade 2 and focus on the combinations they have not yet learned. As you observe your students and assess their knowledge of combinations later in Investigation 2, you will note that some may need more practice in one or more of these categories, particularly the final group of remaining combinations. Addition Combinations Practice (M29) contains blank addition cards for you or students to fill in, according to their individual needs.

Knowing the addition combinations should be judged not only by quick recall but also by fluency in use. Can students call on these combinations and use them easily as they solve other problems? Through repeated use and familiarity, students will come to know most of the addition combinations quickly. For the others, they will be able to use some quick and comfortable strategy based on reasoning about the numbers.

Categories of Addition Combinations

The categories of combinations are listed below. There are also notes about when most students learn these combinations. Note that some combinations fall into more than one category. For example, $1 + 9$ and $9 + 1$ is both a combination that makes 10 and a plus-1 combination.

Plus-1 and plus-2 combinations Many students leave Grade 1 fluent with the combinations that involve adding 1 or 2 to any single-digit number ($8 + 1$ and $7 + 2$). As second graders come to understand that addition is commutative, they also become fluent with combinations in which the order of the numbers is reversed ($1 + 8$ and $2 + 7$).

Make-10 combinations These two-addend combinations of 10 (e.g., $3 + 7$, $4 + 6$) were a benchmark for the end of Grade 1; students review them in Grade 2.

Doubles By the end of first grade, many students know their doubles combinations up to $5 + 5$. In Grade 2, students work on these combinations up to $10 + 10$. Students practice these combinations throughout Grade 2 and should gain fluency with them by the end of the year.

Near doubles (or doubles plus or minus 1) Students learn these combinations in Grade 2—those that are one more or one less than the doubles (e.g., $5 + 6$, $7 + 8$)—by relating them to the doubles.

Plus-10 combinations As students work on ideas about place value in Grade 2, they learn the plus-10 combinations—the sums of 10 and the numbers 1–10 ($10 + 1$, $10 + 2$, $10 + 3$, . . . $10 + 10$).

Plus-9 combinations Students learn these combinations—the sums of 9 and the numbers 1–10 ($9 + 1$, $9 + 2$, $9 + 3$, . . . $9 + 10$)—by relating them to the plus-10 combinations.

Remaining combinations Students who are fluent with doubles plus or minus 1 may be able to use the “clue” that several of the remaining combinations are doubles *plus or minus 2*. Students who are fluent with the make-10 combinations and with breaking numbers apart can solve most of these quickly (e.g., by breaking apart $7 + 5$ into $7 + 3 + 2$). Similarly, students can use their knowledge of make-10 combinations to solve “near-10” combinations ($6 + 3$, $7 + 4$, $8 + 3$).