LESSON 9

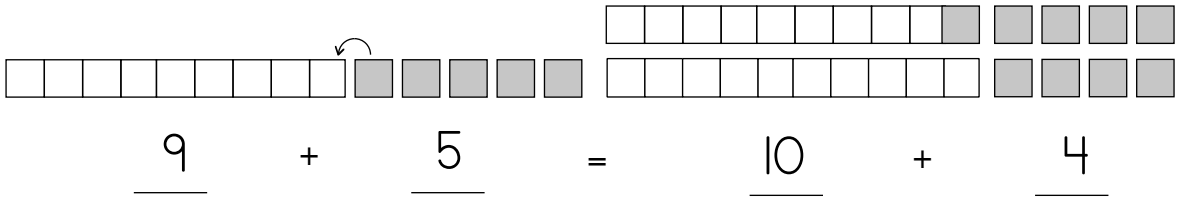
Addition: +9, Mental Maths

In this lesson we are adding by nines. The idea of making or wanting to be ten will be your fun-dation for regrouping. First practise counting backwards by one using the game near the end of this lesson. Taking one away, or counting down by one, is essential to our approach to learning to add by nine.

I like to introduce this with a short narrative about how nine isn't content because he wants to be ten. Ask most nine-year-olds how old they want to be, and they say, "Ten!" Children understand Mr. Nine. Next ask, "What does nine need to have added to him to be ten?" "One unit!" Nine is therefore always on the prowl, looking for one more so he can be ten! Using a nine bar and several green unit bars, let's create the equation 9 + 5. Ham it up any way you can, perhaps having the student look away or close his eyes. In that instant nine takes one to be ten (or "onety").

Example 1

Solve 9 + 5 =



Nine plus five is equal to ten plus four, or fourteen.

Note: This will be the first time a student has added ten to a number. Simply apply what the student knows about place value. Start with ten and ask what you would have if you added two more: for example: 10 + 2 = 12. Put together a ten bar and a two bar to illustrate this.

In example 1, we still have one nine and five units, and they are the same length as one ten and four units. Nine is finally happy, and 10 + 4 is 14 ("onety-four"). We can also see that 9 + 5 = 14. The original five has been decreased by one from five

to four. And nine has been increased by one to be ten. This is what regrouping or carrying is all about!

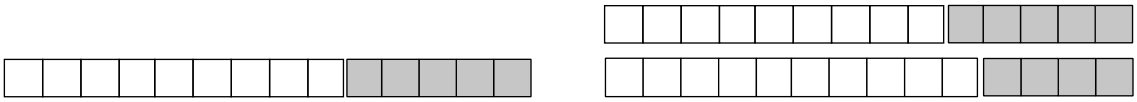
To remember the written code, let's make the circle on the top of the numeral 9 the end of a vacuum nozzle. Nine is always "sucking up" one. Making the noise is fun and multi-sensory. When a child sees 9, he thinks "one less" and sucks up one or makes whatever noise you make. Practise the nines now until the student understands and feels confident adding by nine. Be sure to practise "taking one away" first with the game on the next page.

There are addition facts songs on the CD *Skip Counting and Addition Facts Songs*. These are designed to assist the student in memorising his facts.

Another way to solve adding by nine is to use the coloured unit bars. For 9 + 5 pick out the lime green bar and the light blue five bar. Place them end to end and say, "Nine plus five is the same as ten plus what?" Have the student find the yellow four bar and place it at the end of the blue ten bar. Then say, "Nine plus five is the same as ten plus four, or fourteen." See example 2. Choose whichever way helps the student understand the concept most effectively. Don't forget to use the same strategies as in previous lessons of presenting the problems by building, writing, and saying to assist in memorising and understanding these facts.

Example 2

Solve 9 + 5 =



9 + 5 = 10 + 4

Nine plus five is equal to ten plus four, or fourteen.

With this lesson, we have learned 64 out of 100 facts. That is over half!

0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9
1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9
2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9
3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9
4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9
5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9
6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9
7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9
8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9
9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9

Game to Precede Adding by 9

Smaller – Get out the one through nine blocks and stack them in ascending order so the green unit is on the right. Ask the question, "Which number is a one smaller than ( )?" or "Which number is a one less than ( )?" Do this until the student knows each one; only then move to learning the nine facts.

Mental Maths

Mental maths problems can be used to keep the facts alive in the memory and to develop mental maths skills. The teacher should say the problem slowly enough so that the student comprehends it, and then walk him through increasingly difficult exercises. The purpose is to stretch but not discourage. You decide where that line is! See the example below, along with some suggested problems to try.

Example 3

2 + 3 + 1 = ? "Two plus three plus one equals what number?"

The student thinks, "2 + 3 = 5, and 5 + 1 = 6." At first you will need to go slowly enough for him or her to verbalise the intermediate step. As skills increase, the student should be able to just give the answer.

Starting with this lesson, every third lesson in this instruction manual will have some suggested mental maths problems for you to read aloud to your student. Try a few at a time, and remember to go quite slowly at first.

1. Four plus one plus one equals what number? (6)
2. Two plus two plus zero equals what number? (4)
3. Five plus one plus two equals what number? (8)
4. Three plus two plus two equals what number? (7)
5. Eight plus one plus five equals what number? (14)
6. One plus three plus zero equals what number? (4)
7. Six plus two plus one equals what number? (9)
8. Five plus two plus two equals what number? (9)
9. Seven plus two plus eight equals what number? (17)
10. Nine plus zero plus one equals what number? (10)