

NUMBER-WORK FOR BEGINNERS.*

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THE selection of a subject for discussion having been left to me, I have chosen one that has always possessed a peculiar interest, namely, "Number-work for beginners."

A child entering one of our ungraded schools at the age of six or eight has small idea or conception of number. Many of us as teachers make a mistake in assuming that the little ones know things of which in reality they are profoundly ignorant. The best method of dealing with them is to assume that they know nothing whatever of number. If the teacher takes an interest in the subject and displays even a moderate share of tact, the lessons may be made bright and inspiring and a source of real pleasure. I know of no exercise which will so thoroughly arouse a child as a properly-conducted number lesson. And now for a few practical details culled from experience.

Provide as many objects as possible—smooth pebbles, grains of corn, acorns, buttons, splints. Place these things upon a table if you can secure one, and let the children stand around. If not, in lieu of one, prop the desk-lid to level and begin. Of course the first act in the performance will be the knocking out of the prop and the scattering of your material to the four corners of the school-room. Do not, if you can help it, scold the nervous, awkward little creature who was the cause of the catastrophe. Smile brightly as though such an occurrence were quite a matter of course, and on the whole rather good fun, gather the things together and go cheerfully to work again.

The number three is a good starting point for the average child. The perception of this number or the ability to recognize as a whole is the first step. Call upon them to show you *three* acorns, *three* pebbles, hold up *three* fingers, nod *three* times, make *three* steps. Place the figure 3 upon the blackboard, and try to make them understand that it is the symbol of the objects before them. Ask them, "What can you find in 3?" If this is a first lesson they will stare you blankly in the face, and you must say, "I find 1 and 2 in 3," separating the pebbles into groups as you speak, and making each one arrange them in the same way. Go then to the board and write $1 + 2 = 3$. Tell them half a dozen little stories to illustrate this, as "Two ducks were swimming on the pond and one more came to join them. If you have been holding their attention all this time when you say, "Now who can tell me a story like that?" Put on the board a picture; this may consist of one ring with two more directly under it. The brightest child in the class (there is always a brightest one) will thrust up a hand with the request, "Let me make a picture." "Certainly," that is precisely what you wished to elicit. This will be enough for one lesson. Leave them to copy the formula $1 + 2 = 3$. If they succeed even after repeated trials it will be a boon to you; you will have provided so much "busy work" to keep them employed while you are engaged in other matters. The next lesson continues the analyses, finding that $2 + 1 = 3$, that there are 3 ones in 3, etc. A third lesson introduces the minus sign -. Interpret minus by telling them that it means "to take away." Let them

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