

# Pet Tricks

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Kids are taught math as pets are taught tricks. A dog has no idea why its master wants it to perform. With careful training many dogs can be taught to perform complex sequences of actions in response to various commands and cues. When a dog is taught to perform a trick it has no need or use for any “understanding” beyond which sequence of movements its trainer desires. The dog is taught a sequence of simple physical movements in a specific order to create an overall effect. In the same way, we teach children to perform a sequence of simple computations in a specific order to achieve an overall effect. The dog uses its feet to move about a space and manipulate objects; the student uses a pencil to move about a page and manipulate numbers. In most cases the student doesn't know any more than the dog about the effect it creates. Neither has any intrinsic motivation to perform, nor any idea why the performance is demanded. Practice, practice, practice, and eventually the dog can perform reliably on command. This is exactly how kids are trained to perform math: do a hundred meaningless practice problems, then try to do the same trick on the test.

Obviously, however, there is a large difference between a dog and a child: a dog *cannot* understand and a child *can*. Children are smart. Children begin with intense curiosity, and have the capacity to understand as a dog never will. To train children as we train pets is disrespectful, ineffective, and actually harmful. We certainly do not expect a dog to go out into the world and find opportunities to shake hands or roll over. Do we really expect kids to go out into the world and find opportunities to add columns of five-digit numbers, or divide a negative fraction by a positive one? I don't suppose a dog ever becomes disappointed and dispirited that rolling over is not useful; all he wants is praise and a treat. Children, by the tens of millions, do become disappointed and dispirited as they spend year after year memorizing and performing “math tricks” they do not understand, and for which they have no use.

If the only result of K-7 math training is to produce kids well-drilled in arithmetic, then why not just give them calculators, and devote the time spent on math to learning a foreign language, or philosophy, or something else

that can be satisfying and useful? If there really is some value in being able to add a column of numbers without a calculator, I hope someone will share it with me. Is the fear that someone might get stranded on a deserted island without a calculator, and then what? Why don't we have the same fear of being without a pencil? In today's world isn't it generally easier to find a cell phone than a pencil, and doesn't every cell phone include a calculator application? Do we still teach children how to build a cooking fire, or make nails of wrought iron, or spin cotton, or pluck chickens?

I have no objection to performing arithmetic by hand, and I believe that every child should learn how to do this. But how much time should be devoted to developing this skill, and at what cost? Even if we believe that it is important, as I do, should we do it to the exclusion of everything else? A seven or eight year diet of only arithmetic in math education is fatal to mathematical curiosity and deadens the life of the mind. Such curricula fail to develop concrete or abstract thinking skills, or reasoning skills, or any kind of understanding. They completely ignore these faculties and let them lay fallow during a period when they can and should be actively developed.