

There's Not a Googol of Anything in the Universe

File this under the “whodathunk?” category...

My kids are obsessed with the number “Googol,” i.e., 10^{100} , or, a 1 followed by 100 zeroes. It always ends up being the climax of their silly enumeration back-and-forths (“Oh yeah, well you have a googol of [insert unpleasant thing]!”)

But when we looked into it, we were surprised to find that there wasn't a googol of anything in the universe—not even atoms. According to scientists and [this blog post](#) by John Cook,

“There are about 4×10^{79} atoms in the universe. (Here's a [derivation](#) of that number.) You could bump that number up a little by counting particles rather than atoms, but not by much. There's not a googol of anything physical in the universe.”

My kids still refuse to believe me.