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Science in Ten–Hundred Words: The “Up–Goer 5” Challenge

By Chris Rowan | January 27, 2013



A central question of communicating science to a wider audience often boils down to this: can you take a complex scientific topic and explain it in a way that someone unfamiliar with the field can understand? The commonly-cited techniques for meeting this challenge, such as cutting out jargon and using relatable analogies, sound easy in principle but are often quite tough in practice.

Perhaps that is why the [Up–Goer Five text editor](#), created by geneticist Theo Sanderson, has struck such a cord with many scientists, including me and my co-blogger Anne Jefferson. Inspired by [a brilliant xckd comic](#) that took the elimination of jargon to an almost absurd degree by attempting to describe the blueprints of the Saturn V moon rocket using only a list of the most thousand commonly used English words (hence, Up Goer Five – “the only flying space car that has taken anyone to another world”), the text editor compares anything that you type into it against that same list and gently chides you when you use a word that isn’t on it.

Anne and I were not the first scientists to discover the Up–Goer Five editor, but [when we blogged about our attempts](#) to describe urban hydrology (without ‘stream’ or ‘river’), and paleomagnetism (without ‘magnet’), and challenged other scientists to try their hand at describing what they do in Up–Goer Five–speak, we were inundated with responses – so many that to record them all for posterity, and to allow future entries to be more easily collected, we set up a dedicated Tumblr blog called ‘[Ten Hundred Words of Science](#)’ to showcase them all.

In just over a week, it has accumulated almost three hundred entries, with subjects ranging from string theory (“[the different kinds of bits we see come from just one kind of wrapped long thing moving in different ways](#)”) to cognitive science (“[I study what it is about human minds that allows us to speak to each other](#)”), via volcanology (“[Tiny pieces of fire rock from inside the world can fly through the air](#)”), plate tectonics (“[Even though the ground under your feet feels very still, it is actually moving really, really slowly](#)”), nanotechnology (“[If you take a big thing and make it small, it does something different than what you’d expect](#)”) and everything else in between.

Some might not see this as anything more than a gimmick, and argue that the constraints you are forced to work under are too severe; that by replacing jargon with a dense thicket of ‘simple’ words, you are just replacing one sort of linguistic complexity with another. That certainly can happen, but only if you miss the point of the exercise.

What the vast majority of the submissions we’ve read in the past week clearly show is that if you seek to move beyond the straight replacement of forbidden words and seek to recast the concept you’re trying to explain, then something quite profound can result. Here for example, is Darwin’s theory of evolution by natural selection, [distilled down to its essence](#) by Richard Carter:

<p>“Deep inside our world is a huge ball of hot stuff. This is the stuff that turns...” – Peter Selkin (@paselkin)</p>	<p>“I look at very tiny living things, called cells, that are found all over the...” – Coleen McHugh</p>	<p>“Groups of stars make new stars from their stuff. When groups of stars go into...” – Kyle</p>
<p>“Sometimes there is bad stuff in the ground. This bad stuff comes from places...” – Woody.</p>	<p>“Our one amazing world is full: of people, the stuff we’ve made and of the...” – Antony Upward /</p>	<p>“When we throw away stuff we do not want, this is not good. I work to help people...” – Gwawdwr.</p>
<p>“There are many different ways of making a computer learn and give answers to...” – I’m working with</p>	<p>“I studied the bad things in the air, where they come from (like cars and places...” – Gretchen Goldman.</p>	<p>“I work at a large (and very cold) school, where I study groups of stars. Most...” – Kyle Willett and Galaxy Zoo</p>

all the animals and green things we see in the world...have all been made by the same, fixed, easy steps acting all around us. These easy steps, taken in the largest sense, being growing and having babies; being like your parents (but not exactly like them); and being able to avoid dying for as long as possible.

If the unifying theorem of all biology can be so vividly described despite the limitations being imposed by the Up-Goer 5 list, then I think we can find it within all of us to do the same with our own research. I certainly feel that my own attempt to recast the magnetic signals I study as memories of past locations stored within the rocks, that they can give us if we ask them in the right way, did give me some insight into explaining what I do. As [Anne remarked](#):

In many ways, I think telling people that you study little green things that lived more than “10 hundred times 10 hundred years ago” gives more of a sense of the enormity of geologic time in a palpable way than saying that you study organisms that lived more than a million years ago...

...I think this is a great vehicle for getting us to be thoughtful about the way we explain our work to each other and to non-scientists. It definitely takes more thought to distill a complex topic down to a jargon-free explanation of the core principles and why they are exciting. And sometimes it takes more words. But, in the end, if it helps people to understand what science is all about, then that effort and those carefully chosen words are totally worthwhile.

As such, we hope that people continue to [take the challenge](#), and submit them to [Ten Hundred Words of Science](#). Because you’re not just explaining something to other people – you’re also explaining it to yourself.


‘And if you want a slightly less stringent vocabulary to work with, then Theo Sanderson has now come up with [Up-Goer Six](#), an editor that colour codes your words based on their frequency of usage, rather than rejecting them outright.’



About the Author: Chris Rowan is a geologist specialising in tectonics, the deformation of continents, and paleomagnetism. He is currently an assistant professor in the Department of Geology at Kent State University. He blogs at [Highly Allochthonous](#). Follow on Twitter [@Allochthonous](#). [More »](#)

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