

Examples of Good Science Writing

Sharing examples of scientific writing that uses metaphors and analogies effectively, and makes scientific concepts alive and interesting encourages students to improve their own writing about science. The following excerpts can be the beginning of a starter set of examples you can share with students.

A Bee in a Cathedral Offers a Trove of Science Analogies

<http://researchexplainer.com/category/writing-science>*

This site lists a few examples of good scientific analogies excerpted from a book. Some examples are:

- The energy released by a single hurricane could power the entire U.S. for six months.
- Every day the heart expends enough energy to drive a truck 20 miles. Over a lifetime, it could power a truck to the moon and back.
- To see what it's like to be your own heart, try using a teacup to empty a bathtub in 15 minutes—then do it again and again, without stopping, for the rest of your life.

Cosmos by Carl Sagan

"The Earth is a place. It is by no means the only place. It is not even a typical place. No planet or star or galaxy can be typical because the Cosmos is mostly empty. The only typical place is within the vast, cold, universal vacuum, the everlasting night of intergalactic space, a place so strange and desolate that by comparison, planets and stars and galaxies seem achingly rare and lovely. If we were randomly inserted into the Cosmos, the chance that we would find ourselves on or near a planet would be less than one in a billion trillion trillion (10^{33} , a one followed by 33 zeroes). In everyday life such odds are called compelling. Worlds are precious" (p. 2).

The Elegant Universe by Brian Greene

<http://books.google.com/books?id=jYHtp6kx8qgC&printsec=frontcover&dq=the+elegant+universe&hl=en&sa=X&ei=h-hxT8K1KuzYiAKC0qTzDA&ved=0CEkQ6AEwAA#v=onepage&q=the%20elegant%20universe&f=false>*

"To get a sense of the scales involved, imagine the year is 1970 and big, fast cars are in. Slim ... goes with his brother Jim to the local drag strip to give [a new Trans Am] the kind of test drive forbidden by the dealer. After revving up the car, Slim streaks down the mile-long strip at 120 miles per hour while Jim stands on the sideline and times him. Wanting an independent confirmation, Slim also uses a stopwatch to determine how long it takes his new car to traverse the track. Prior to Einstein's work, no one would have questioned that if both Slim and Jim have properly functioning stopwatches, each will measure the identical elapsed time. But according to special relativity, while Jim will measure an elapsed time of

30 seconds, Slim's stopwatch will record an elapsed time of 29.99999999999952 seconds—*a tiny bit less*" (p. 271).

***Genome: The Autobiography of a Species in 23 Chapters* by Matt Ridley**

www.cse.iitk.ac.in/users/amit/books/ridley-1999-genome-autobiography-of.html*

"If you took two plastocene amoebae and turned one into a chimpanzee and the other into a human being, almost all the changes you would make would be the same. Both would need thirty-two teeth, five fingers, two eyes, four limbs and a liver. From the perspective of an amoeba, or for that matter a fertilized egg, chimps and human beings are ninety-eight percent the same. There is no bone in the chimpanzee body that I do not share. There is no known chemical in the chimpanzee brain that cannot be found in the human brain. There is no known part of the immune system, the digestive system, the lymph system, or the nervous system that we have and chimpanzees do not, or vice versa [But of course, we have only 23 chromosomes vs their 24.]" (p.29).

***Lives of a Cell* by Lewis Thomas**

"The microorganisms that seem to have it in for us in the worst way—the ones that really appear to wish us ill—turn out on close examination to be rather more like bystanders, strays, strangers in from the cold. They will invade and replicate if given the chance, and some of them will get into our deepest tissues and set forth in the blood, but it is our response to their presence that makes the disease. Our arsenals for fighting off bacteria are so powerful, and involve so many different defense mechanisms, that we are in more danger from them than from the invaders. We live in the midst of explosive devices; we are mined."

"It is the information carried by the bacteria that we cannot abide" (p. 135).

***A Short History of Nearly Everything* by Bill Bryson**

"In France, a chemist named Pilatre de Rozier tested the flammability of hydrogen by gulping a mouthful and blowing across an open flame, proving at a stroke that hydrogen is indeed explosively combustible and that eyebrows are not necessarily a permanent feature of one's face."

"It is easy to overlook this thought that life just is. As humans we are inclined to feel that life must have a point. We have plans and aspirations and desires. We want to take constant advantage of the intoxicating existence we've been endowed with. But what's life to a lichen? Yet its impulse to exist, to be, is every bit as strong as ours—arguably even stronger. If I were told that I had to spend decades being a furry growth on a rock in the woods, I believe I would lose the will to go on. Lichens don't. Like virtually all living things, they will suffer any hardship, endure any insult, for a moment's additions existence. Life, in short, just wants to be."