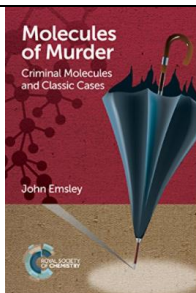


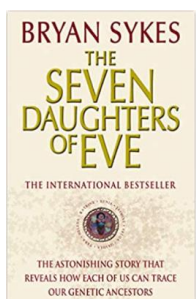
Recommended Reading List

Key Stage 4

	<p>Life at the Extremes How do people survive extremes of heat, cold, depth, speed, and altitude? This book explores the limits of human survival and the physiological adaptations which enable us to exist under extreme conditions. In man's battle for survival in the harshest of environments, the knowledge imparted by physiology, the 'logic of life', is crucial. What causes mountain sickness? Why is it possible to reach the top of Everest without supplementary oxygen yet be killed if a plane depressurises suddenly at the same altitude. Why are astronauts unable to stand without fainting when they return to Earth? Why do human divers get the bends, but sperm whales don't? Will men always be able to run faster than women? Why don't penguins get frostbite?</p>
	<p>The Spark of Life: Electricity in the human body From before birth to the last breath we draw, from consciousness to sexual attraction, fighting infection to the beating of our hearts, electricity is essential to everything we think and do. In <i>The Spark of Life</i> award-winning physiologist Frances Ashcroft reveals the secrets of ion channels, which produce the electrical signals in our cells. Can someone really die of fright? How do cocaine, LSD, and morphine work? Why do chilli peppers taste hot? Ashcroft explains all this and more with wit and clarity. Anyone who has ever wondered about what makes us human will find this book a revelation.</p>
	<p>The Immortal Life of Henrietta Lacks Her name was Henrietta Lacks, but scientists know her as HeLa. Born a poor black tobacco farmer, her cancer cells – taken without her knowledge – became a multimillion-dollar industry and one of the most important tools in medicine. Yet Henrietta's family did not learn of her 'immortality' until more than twenty years after her death, with devastating consequences . . .</p>
	<p>Survival of the sickest: The surprising connections between disease and longevity In this ground-breaking and absorbing book Dr. Sharon Moalem, delves back into the evolution of man to offer a radical perspective on survival, the human body, and our understanding of disease. <i>Survival of the Sickest</i> will change the way you think about your body. Dr. Moalem investigates peculiar and puzzling features of human biology to reveal the answers to such provocative questions as:</p> <ul style="list-style-type: none"> • Why do we need to pee when we're cold? • Can a person rust to death? • Why are Greeks hairier than Africans? • Can the tanning salon lower cholesterol? • Why are leeches back in vogue? • Can sunglasses cause sunburns? • Who gets drunk faster – Europeans or Asians?
	<p>Molecules of Murder: Criminal Molecules and Classic Murders Molecules of Murder is about infamous murderers and famous victims; about people like Harold Shipman, Alexander Litvinenko, Adelaide Bartlett, and Georgi Markov. Few books on poisons analyse these crimes from the viewpoint of the poison itself, doing so throws a new light on how the murders or attempted murders were carried out and ultimately how the</p>



perpetrators were uncovered and brought to justice. Part I includes molecules which occur naturally and were originally used by doctors before becoming notorious as murder weapons. Part II deals with unnatural molecules, mainly man-made, and they too have been dangerously misused in famous crimes. The book ends with the most famous poisoning case in recent years, that of Alexander Litvinenko and his death from polonium chloride. The first half of each chapter starts by looking at the target molecule itself, its discovery, its history, its chemistry, its use in medicine, its toxicology, and its effects on the human body. The second half then investigates a famous murder case and reveals the modus operandi of the poisoner and how some were caught, some are still at large, and some literally got away with murder.



The Seven Daughters of Eve

In 1994 Professor Bryan Sykes, a leading world authority on DNA and human evolution, was called in to examine the frozen remains of a man trapped in glacial ice in northern Italy. News of the discovery of the Ice Man and his age, which was put at over five thousand years old, fascinated the world. But what made the story particularly extraordinary was that Professor Sykes was also able to track down a living generic relative of the Ice Man, a woman living in Britain today.

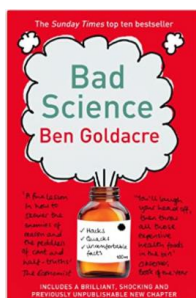
How was he able to locate a living relative of a man who died thousands of years ago? In *The Seven Daughters of Eve*, Bryan Sykes gives us a first-hand account of his research into a remarkable gene which passes undiluted from generation to generation through the maternal line and shows how it is being used to track our genetic ancestors through time and space. After plotting thousands of DNA sequences from all over the world he found that they had clustered around a handful of distinct groups. In Europe there are only seven. The conclusion: almost everyone of native European descent, wherever they live in the world, can trace their ancestry back to one of seven women, the Seven Daughters of Eve. He has named them Ursula, Xenia, Helena, Velda, Tara, Katrine, and Jasmine.



Last Chance to See

Join Douglas Adams, bestselling and beloved author of *The Hitchhiker's Guide to the Galaxy*, and zoologist Mark Carwardine on an adventure in search of the world's most endangered and exotic creatures.

In this book, Adams' self-proclaimed favourite of his own works, the pair encounter animals in imminent peril: the giant Komodo dragon of Indonesia, the lovable kakapo of New Zealand, the blind river dolphins of China, the white rhinos of Zaire, the rare birds of Mauritius island in the Indian Ocean and the alien-like aye-aye of Madagascar. Inimitably witty and poignant, *Last Chance to See* is both a celebration of our most extraordinary creatures and a warning about what we have to lose if we do not act soon.



Bad Science

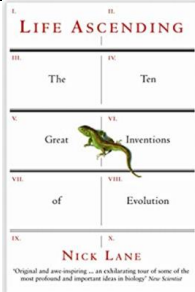
Since 2003 Dr Ben Goldacre has been exposing dodgy medical data in his popular Guardian column. In this eye-opening book he takes on the MMR hoax and misleading cosmetics ads, acupuncture and homeopathy, vitamins and mankind's vexed relationship with all manner of 'toxins'. Along the way, the self-confessed 'Johnny Ball cum Witchfinder General' performs a successful detox on a Barbie doll, sees his dead cat become a certified nutritionist and probes the supposed medical qualifications of 'Dr' Gillian McKeith.

Full spleen and satire, Ben Goldacre takes us on a hilarious, invigorating and ultimately alarming journey through the bad science we are fed daily by hacks and quacks.



Bad Pharma: How Medicine is Broken, and How We Can Fix It

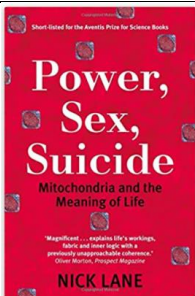
Doctors and patients need good scientific evidence to make informed decisions. But instead, companies run bad trials on their own drugs, which distort and exaggerate the benefits by design. When these trials produce unflattering results, the data is simply buried. All of this is perfectly legal. In fact, even government regulators withhold vitally important data from the people who need it most. Doctors and patient groups have stood by too and failed to protect us. Instead, they take money and favours, in a world so fractured that medics and nurses are now educated by the drugs industry. The result: patients are harmed in huge numbers



Life ascending

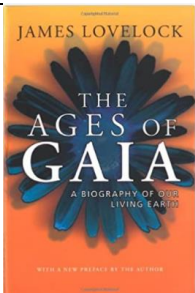
Powerful new research methods are providing fresh and vivid insights into the makeup of life. Comparing gene sequences, examining the atomic structure of proteins, and looking into the geochemistry of rocks have all helped to explain creation and evolution in more detail than ever before. Nick Lane uses the full extent of this new knowledge to describe the ten greatest inventions of life, based on their historical impact, role in living organisms today and relevance to current controversies. DNA, sex, sight and consciousness are just four examples.

Lane also explains how these findings have come about, and the extent to which they can be relied upon. The result is a gripping and lucid account of the ingenuity of nature, and a book which is essential reading for anyone who has ever questioned the science behind the glories of everyday life.



Power, Sex, Suicide: Mitochondria and the Meaning of Life

Mitochondria are tiny structures located inside our cells that carry out the essential task of producing energy for the cell. They are found in all complex living things, and in that sense, they are fundamental for driving complex life on the planet. But there is much more to them than that. Mitochondria have their own DNA, with their own small collection of genes, separate from those in the cell nucleus. It is thought that they were once bacteria living independent lives. Their enslavement within the larger cell was a turning point in the evolution of life, enabling the development of complex organisms and, closely related, the origin of two sexes. Unlike the DNA in the nucleus, mitochondrial DNA is passed down exclusively (or almost exclusively) via the female line. That's why it has been used by some researchers to trace human ancestry daughter-to-mother, to 'Mitochondrial Eve'. Mitochondria give us important information about our evolutionary history. And that's not all. Mitochondrial genes mutate much faster than those in the nucleus because of the free radicals produced in their energy-generating role. This high mutation rate lies behind our ageing and certain congenital diseases. The latest research suggests that mitochondria play a key role in degenerative diseases such as cancer, through their involvement in precipitating cell suicide.

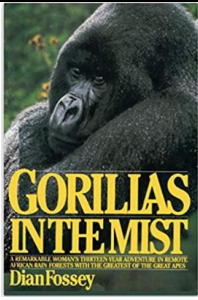


The Ages of Gaia

A trilogy.

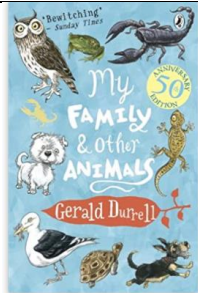
In his first book, *Gaia: A New Look at Life on Earth*, James Lovelock proposed a startling new theory of life: the Earth, its rocks, oceans, atmosphere, and all living things are part of one great organism, evolving over the vast span of geological time.

Much scientific work has since confirmed his theory and in *The Ages of Gaia* he examines environmental and scientific issues in detail, including the greenhouse effect, acid rain, the depletion of the ozone layer, and the destruction of tropical forests. For this second edition he has updated the text throughout and added a new chapter on recent advances in our scientific knowledge. He sounds a warning of the damage man is doing to the health of the planet. 'We have already changed the atmosphere to an extent unprecedented in recent geological history. We seem to be driving ourselves heedlessly down a slope into a sea that is rising to drown us.'



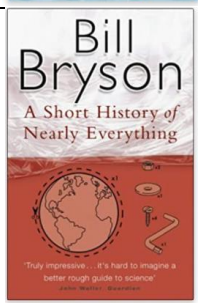
Gorillas in the Mist

Dr. Dian Fossey, the world authority on the endangered mountain gorilla, combines her riveting personal adventure story with fascinating scientific reporting in this landmark book on the greatest of the great apes. Gorillas in the Mist documents one of the longest field studies of primates, as it covers fifteen years, four gorilla families and three generations in the remote rain forests of the volcanic Virunga Mountains shared by Zaire, Rwanda, and Uganda. One of our closest primate relatives, gorillas form tight kinship bonds, which can sustain these close-knit families for generations. These shy, gentle vegetarians (who occasionally eat grubs for protein) live in a group headed by a dominant male, called a silver-back, and roam a rugged age-old environment between 9,000 feet and 13,000 feet above sea level. Working alone from a base camp 10,000 feet above sea level, Diane Fossey struggled with acrophobia on 45-degree slopes, torrential rains, hail and fog, foot-deep mud, poachers, gorilla slaughters, witchcraft, and revolution.



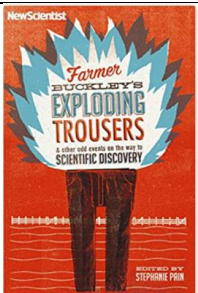
My family and other animals

Sometimes it's pretty hard to tell them apart... my family and the animals, that is. I don't know why my brothers and sisters complain so much. With snakes in the bath and scorpions on the lunch table, our house, on the island of Corfu, is a bit like a circus. So they should feel right at home...



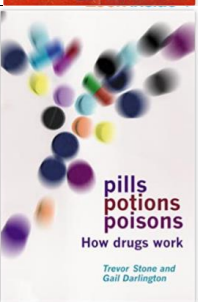
A short history of nearly everything

Bill Bryson describes himself as a reluctant traveller: but even when he stays safely in his own study at home, he can't contain his curiosity about the world around him. A Short History of Nearly Everything is his quest to find out everything that has happened from the Big Bang to the rise of civilization - how we got from there, being nothing at all, to here, being us. Bill Bryson's challenge is to take subjects that normally bore the pants off most of us, like geology, chemistry and particle physics, and see if there isn't some way to render them comprehensible to people who have never thought they could be interested in science. It's not so much about what we know, as about how we know what we know. How do we know what is in the centre of the Earth, or what a black hole is, or where the continents were 600 million years ago? How did anyone ever figure these things out?



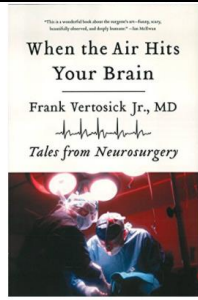
Farmer Buckley's Exploding Trousers

In August 1931, New Zealand farmer Richard Buckley hit the local headlines - or rather his trousers did. One minute they were drying in front of the fire; the next there was a huge blast and a ball of flames. Farmer Buckley's trousers had exploded. The culprit? A popular pesticide of the day, which when combined with clothing fibres unexpectedly formed a highly combustible compound. This incendiary story is a striking example of how scientific advances meant to improve people's lives can sometimes backfire.



Pills, Potions, and Poisons: How Drugs Work

About half of all the medicines prescribed by doctors are not taken by their patients. One of the reasons most commonly given by patients for not taking drugs is that they feel unhappy about taking medicines which they do not understand and of which they are afraid. This book attempts to rectify this problem by showing in clear, non-technical language how medicines and other drugs work in the body to reduce the effects of disease. Most chapters include fascinating background information on how some of our most important drugs were discovered, along with intriguing and often amusing anecdotes about the drugs and the people behind their discovery.



When the air hits your brain: tales from neurosurgery

With poignant insight and humour, Frank Vertosick Jr., MD, describes some of the greatest challenges of his career, including a six-week-old infant with a tumour in her brain, a young man struck down in his prime by paraplegia, and a minister with a .22-caliber bullet lodged in his skull. Told through intimate portraits of Vertosick's patients and unsparing yet fascinatingly detailed descriptions of surgical procedures, *When the Air Hits Your Brain*—the culmination of decades spent struggling to learn an unforgiving craft—illuminates both the mysteries of the mind and the realities of the operating room.