**Christmas book list**.

Here are some suggestions for books to read over the holidays or as presents. The list contains a mix of popular science books and novels. They are just suggestions, and there are plenty of excellent popular science books not on this list. (\* Highly recommended)

Or choose a book from the longlist of the Royal society 2016 Science book prize

<https://royalsociety.org/awards/science-books/>

**\*S Kean ‘**The Disappearing spoon’

An engaging book looking at the science and history behind the periodic table. Interesting and informative

**Penny Le Couteur** Napoleon’s Buttons Looking at how chemistry has affected the history of the world through 17 difference molecules, from spices to opiates.

**\*Sean Carroll ‘The Particle at the End of the Universe’**

**The 2013 winner of the Royal Society Book Prize.**

‘Award-winning physicist and science populariser Sean Carroll reveals the history-making forces

of insight, rivalry, and wonder that fuelled the Higgs search and how its discovery opens a door

into the mind-boggling domain of dark matter and other phenomena we never predicted.

**\*Frances Ashcoft ‘The Spark of life: Electricity in the human body’**

‘We are all familiar with the idea that machines are powered by electricity, but perhaps not so

aware that this is also true for ourselves. The Spark of Life is a spectacular account of the body electric, showing how, from before conception to the last breath we draw, electrical signals in our cells are essential to everything we think and do.’

 **Mark Miodownik** ‘Stuff Matters’

Everything is made of stuff Mark takes the reader on a tour of the materials that make up our modern world from concrete to chocolate. Winner of the 2014 royal society book prize

**\*Atul Gawande** ‘ Complications’, 2002. ‘Better’, 2007. ‘Checklist manifesto’, 2009. ‘Being Mortal’, 2014.

Atul Gawande is Professor of surgery at Harvard Medical school and writes extensively on his life and work as a surgeon and medical professional, working to reduce deaths from surgery worldwide. His latest book on caring for an ageing population is a sobering account of care for the elderly in the USA and what we need to do to improve, a must read for any potential medical students

**\*Frances Ashcoft ‘Life at the extremes’**

In *Life at the Extremes* Frances Ashcroft, Professor of Physiology at Oxford University, investigates the related questions: how much can the human body endure? What can it survive, what causes it to fail? Why can some creatures tolerate conditions that would kill others?

**\*S Kean** ‘The Violinist's Thumb: And other extraordinary true stories as written by our DNA’

The epic true story of human DNA and what it can tell us about our world.

**R Dawkins** ‘The Ancestor’s Tale: A pilgrimage to the dawn on life

Just as we trace our personal family trees from parents to grandparents and so on back in time, so in *The Ancestor's Tale* Richard Dawkins traces the ancestry of life. As he is at pains to point out, this is very much our human tale, our ancestry.

**L Wolpert** ‘How we live and why we die: the secret life of cells’

Distinguished biologist Lewis Wolpert explains how cells provide the answers to fundamental questions about our lives. Recommended for Biochemist, biologists, anyone with an interest in the working of the human body on the cellular level. (quite a difficult read)

**B Goldacre** ‘Bad Science’

Dr Ben Goldacre is the author of the Bad Science column in the Guardian. This book is about all the 'bad science' we are constantly bombarded with in the media and in advertising. Interesting and informative. If you are applying for medicine you need to read this.

**B Bryson** ‘A Short history of almost everything’

 A quick overview of the key topics in science: This is a pretty broad brief (life, the universe and everything, in fact), A good overview, giving you a broad understanding of topics outside your AS level, eg geology.

**\*S Greenfield** ‘The Private life of the brain’

What is happening in the brain when we drink too much alcohol, get high on ecstasy or experience road rage? Emotion, says internationally acclaimed neuroscientist Susan Greenfield, is the building block of consciousness. Challenging many preconceived notions, Susan Greenfield's groundbreaking book seeks to answer one of science's most enduring mysteries: how our unique sense of self is created.

**R Skloot** ‘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 . . .

**B Cox and J Forshaw** ‘Why does E=mc2’

What does a theoretical physicist actually do? Basically read this and find out.

**Margaret Attwood** ‘Oryx and Crake’

This is a book that grabs your attention from the very first sentence and never lets go, dragging you further and further into the nightmare world of an all to possible near future.

**Kazuo Ishiguro** ‘Never let me go’

A story about people who are cloned so that they may become organ donors.  The meaning and implications on p1-2 gradually become evident later in the book.

**Stuart Sutherland** ‘Irrationality’

Sutherland had a gift for succinctly and non-technically summarising psychology experiments. In this book he surveys more than one hundred and sixty different studies that expose failings of human reasoning and judgement.

**Edward O. Wilson** ‘Consilience’

All tangible phenomena, from the birth of stars to the workings of social institutions, are based on material processes that are ultimately reducible, however long and tortuous the sequences, to the laws of physics.

**Sir I Wilmut, K Campbell and C Tudge** ‘The Second Creation: The Age of Biological Control by the Scientists Who Cloned Dolly’

This book provides a layman's guide to the science that is credited with the 'creation' of Dolly the sheep. It explains that the project which resulted in this world famous animal is only the tip of an iceberg of research which is likely to be of huge benefit to human medicine.

**Leonard Mlodinow** ‘The Drunkard's Walk: How Randomness Rules Our Lives’

Uncertainty is a modern sin that dare not speak its name. There are always pundits on hand to explain the past and prophesy the future, to nurture some of society's "shared illusions". If you want to "learn to view both explanations and prophecies with skepticism" then the "Drunkard's Walk" is an excellent introduction

**Nick Lane** ‘Oxygen: The molecule that made the world’

This book gives a very broad and thoughtful perspective on the importance of oxygen in the development of life on Earth. The chain of reasoning is long and brings to contact discoveries from a series of disciplines otherwise apparently unrelated to each other. Skip the first bits on Earth science to get to the good bits.

**\*Jim Edersby** ‘A Guinea pig’s history of biology’

One of the great untold scientific stories; the history of modern biology through the animals and plants that made it happen.

**Robert Harris** ‘Enigma’

A novel based on the life of a code-breaker at Bletchley Park during the 2nd world war

**\*Oliver Sacks** ‘The man who mistook his wife for a hat’

Oliver Sacks bestselling book of case studies in neurology.

**Alex Bellos** ‘Alex’s adventures in numberland’

Dispatches from the wonderful world of mathematics

**Steven Vogel** ‘The Life of a Leaf’

In its essence, science is a way of looking at and thinking about the world. In *The Life of a Leaf,* Steven Vogel illuminates this approach, using the humble leaf as a model

**\*D Acheson** ‘1089 and all that’

D Acheson, fellow of Jesus college oxford, popularising maths is not easy but D Achesons small book manages the task.

**M du Sautoy** ‘The Music of the Primes: Why an unsolved problem in mathematics matters’

Prime numbers are the very atoms of arithmetic. They also embody one of the most tantalising enigmas in the pursuit of human knowledge.

**M Chown** ‘What a Wonderful World: One Man's Attempt to Explain the Big Stuff’

**D Sivia, SG Rawlings** ‘Foundations of science mathematics’