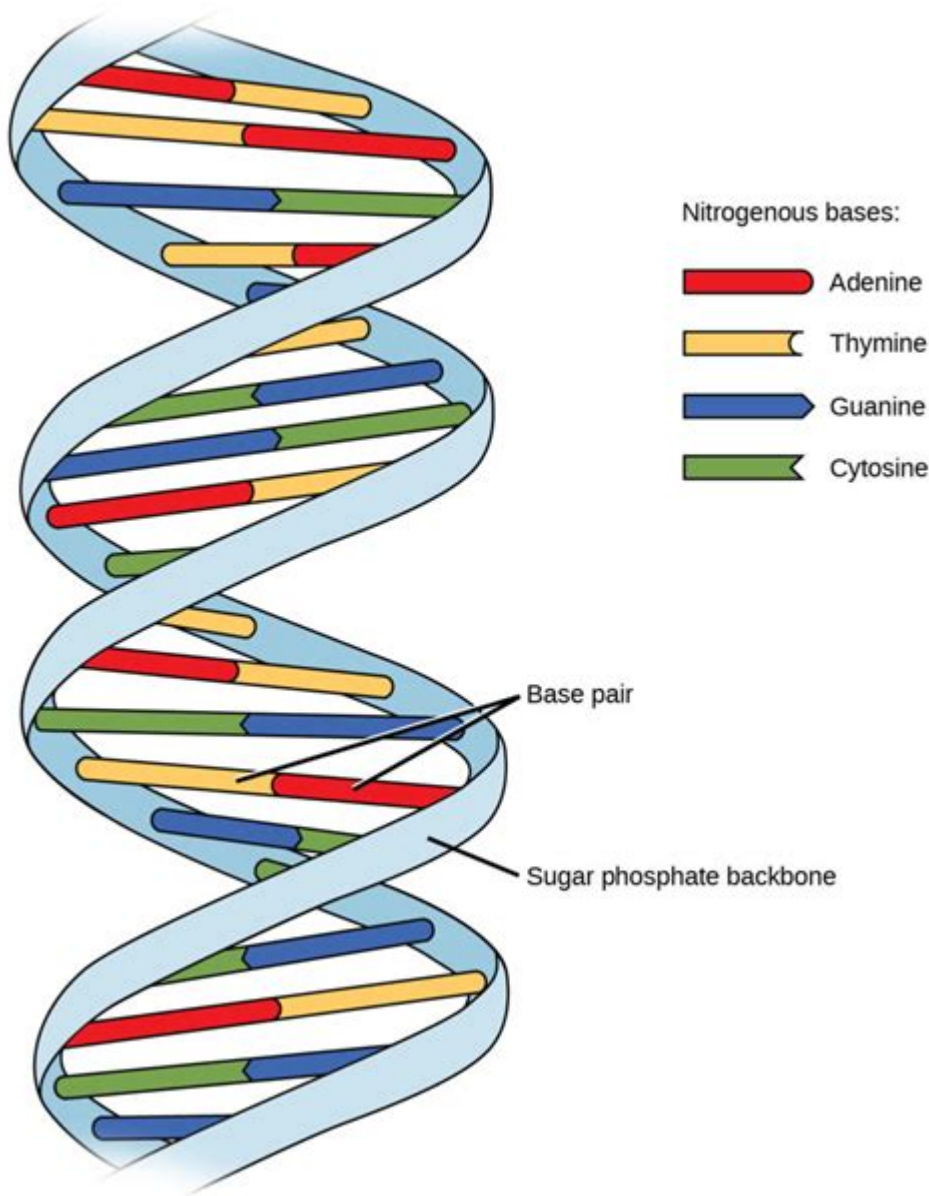


The Double Helix



The Double Helix: Unraveling the Secrets of DNA

Introduction:

Have you ever wondered what makes you, you? Beyond your experiences and personality, the blueprint for your entire being is encoded within a remarkably elegant structure: the double helix. This iconic shape, representing the molecule of deoxyribonucleic acid (DNA), is more than just a pretty picture; it's the fundamental key to understanding life itself. This post will delve deep into the fascinating world of the double helix, exploring its structure, function, discovery, and ongoing impact on science and medicine. We'll unravel its secrets, revealing why this elegant spiral is arguably the most important molecule on Earth.

What is the Double Helix?

The double helix is the three-dimensional structure of a DNA molecule. Imagine a twisted ladder, where the sides are formed by alternating sugar (deoxyribose) and phosphate molecules, and the rungs are formed by pairs of nitrogenous bases: adenine (A) with thymine (T), and guanine (G) with cytosine (C). This specific pairing, known as base pairing, is crucial for the molecule's function. The two strands are antiparallel, meaning they run in opposite directions. This seemingly simple structure holds the code of life, dictating everything from eye color to susceptibility to certain diseases.

The Discovery of the Double Helix: A Scientific Triumph

The discovery of the double helix is a captivating story of scientific collaboration, competition, and sheer brilliance. While many scientists contributed to the understanding of DNA's structure, James Watson and Francis Crick are most famously associated with the breakthrough. Their 1953 paper in *Nature*, announcing the double helix model, revolutionized biology. Crucially, their work built upon the X-ray diffraction images produced by Rosalind Franklin and Maurice Wilkins, whose contributions were initially under-recognized. The double helix model not only explained DNA's structure but also immediately suggested a mechanism for DNA replication – the process by which cells make copies of their genetic material.

The Significance of Rosalind Franklin's Work

It's important to acknowledge Rosalind Franklin's pivotal role. Her meticulous X-ray diffraction images, particularly "Photo 51," provided the crucial evidence that allowed Watson and Crick to deduce the double helical structure. Her contributions were unfortunately overlooked during the initial recognition of the discovery, highlighting a persistent issue of gender bias in science. The recognition of Franklin's vital role has grown over time, and her work is now rightly celebrated as a cornerstone of modern molecular biology.

The Function of the Double Helix: The Code of Life

The double helix's structure is intimately tied to its function. The sequence of bases along the DNA strand constitutes the genetic code. This code dictates the synthesis of proteins, the workhorses of the cell. The sequence of bases is transcribed into messenger RNA (mRNA), which then directs the synthesis of proteins via a process called translation. This intricate process allows cells to build and maintain themselves, grow, and reproduce. Any alterations in the DNA sequence, known as mutations, can have significant consequences, potentially leading to genetic disorders or diseases.

DNA Replication and Cell Division

The double helix structure elegantly facilitates DNA replication. During cell division, the two strands of the DNA helix separate, and each strand acts as a template for the synthesis of a new

complementary strand. This ensures that each daughter cell receives an identical copy of the genetic information. The accuracy of this process is critical for maintaining genetic stability across generations.

The Double Helix in Modern Science and Medicine

The understanding of the double helix has revolutionized numerous fields. It has led to advances in genetic engineering, gene therapy, forensics, and personalized medicine. The ability to manipulate DNA allows scientists to develop new drugs, diagnose diseases earlier, and even potentially cure genetic disorders. Furthermore, our understanding of DNA's structure underpins the field of genomics, which aims to map and understand the entire genomes of organisms.

The Future of Double Helix Research

Research into the double helix continues to evolve rapidly. Scientists are exploring new techniques for gene editing, aiming to correct genetic defects and treat a wide range of diseases. The field of epigenetics is also gaining significant traction, studying how environmental factors can affect gene expression without altering the underlying DNA sequence.

Conclusion:

The double helix, a seemingly simple structure, holds the secrets of life itself. Its discovery was a watershed moment in scientific history, and its ongoing study continues to shape our understanding of biology and medicine. From its elegant structure to its profound impact on our lives, the double helix remains a testament to the power of scientific inquiry and the remarkable complexity of the natural world.

FAQs:

1. What are some common mutations that affect the double helix? Mutations can range from single base changes (point mutations) to larger deletions or insertions of DNA segments. These changes can lead to various effects, including altered protein function or complete loss of protein function.
2. How is the double helix packaged within a cell? DNA is tightly packaged around proteins called histones, forming structures called nucleosomes. These nucleosomes are further compacted to form chromatin fibers, which are then organized into chromosomes.
3. What is the difference between DNA and RNA? While both are nucleic acids, DNA is double-stranded and uses thymine (T), while RNA is single-stranded and uses uracil (U) instead of thymine. DNA stores genetic information, while RNA plays various roles in gene expression, including carrying genetic information from DNA to ribosomes for protein synthesis.
4. How is the double helix related to heredity? The double helix's ability to replicate accurately ensures that genetic information is passed from one generation to the next. This faithful replication is the basis of heredity.

5. What are some ethical considerations surrounding research on the double helix? Ethical concerns arise in areas such as gene editing (CRISPR technology), where the potential for unintended consequences and the equitable access to these technologies need careful consideration. Genetic information privacy is another major ethical concern.

the double helix: *Molecular Biology of the Gene* James D. Watson, Tania A. Baker, Stephen P. Bell, 2014 Now completely up-to-date with the latest research advances, the Seventh Edition retains the distinctive character of earlier editions. Twenty-two concise chapters, co-authored by six highly distinguished biologists, provide current, authoritative coverage of an exciting, fast-changing discipline.

the double helix: *The Path to the Double Helix* Robert Olby, 2013-05-13 Written by a noted historian of science, this in-depth account traces how Watson and Crick achieved one of science's most dramatic feats: their 1953 discovery of the molecular structure of DNA.

the double helix: *Unravelling the Double Helix* Gareth Williams, 2019-10-01 Unraveling the Double Helix covers the most colorful period in the history of DNA, from the discovery of nuclein in the late 1860s to the publication of James Watson's *The Double Helix* in 1968. These hundred years included the establishment of the Nobel Prize, antibiotics, x-ray crystallography, the atom bomb and two devastating world wars—events which are strung along the thread of DNA like beads on a necklace. The story of DNA is a saga packed with awful mistakes as well as brilliant science, with a wonderful cast of heroes and villains. Surprisingly, much of it is unfamiliar. The elucidation of the double helix was one of the most brilliant gems of twentieth century science, but some of the scientists who paved the way have been airbrushed out of history. James Watson and Francis Crick solved a magnificent mystery, but Gareth Williams shows that their contribution was the last few pieces of a gigantic jigsaw puzzle assembled over several decades. The book is comprehensive in scope, covering the first century of the history of DNA in its entirety, including the eight decades that have been neglected by other authors. It also explores the personalities of the main players, the impact of their entanglement with DNA, and what unique qualities make great scientists tick.

the double helix: *Genes, Girls and Gamow* James D. Watson, 2003 An autobiographical account of Jim Watson's life, following on from *The Double Helix*, the story of his and Francis Crick's discovery of the structure of DNA (published in 1968). Here is Watson adjusting to new-found fame, carrying out tantalizing experiments and falling in love.

the double helix: *The Double Helix and the Law of Evidence* David H. Kaye, 2010-05-15 Bridging law, genetics, and statistics, this book is an authoritative history of the long and tortuous process by which DNA science has been integrated into the American legal system. In a history both scientifically sophisticated and comprehensible to the nonspecialist, David Kaye weaves together molecular biology, population genetics, the legal rules of evidence, and theories of statistical reasoning as he describes the struggles between prosecutors and defense counsel over the admissibility of genetic proof of identity. Combining scientific exposition with stories of criminal investigations, scientific and legal hubris, and distortions on all sides, Kaye shows how the adversary system exacerbated divisions among scientists, how lawyers and experts obfuscated some issues and clarified others, how probability and statistics were manipulated and misunderstood, and how the need to convince lay judges influenced the scientific research. Looking to the future, Kaye uses probability theory to clarify legal concepts of relevance and probative value, and describes alternatives to race-based DNA profile frequencies. Essential reading for lawyers, judges, and expert witnesses in DNA cases, *The Double Helix and the Law of Evidence* is an informative and provocative contribution to the interdisciplinary study of law and science.

the double helix: *The Double Helix* James D. Watson, 2011-08-16 The classic personal account of Watson and Crick's groundbreaking discovery of the structure of DNA, now with an introduction by Sylvia Nasar, author of *A Beautiful Mind*. By identifying the structure of DNA, the molecule of life, Francis Crick and James Watson revolutionized biochemistry and won themselves a Nobel Prize.

At the time, Watson was only twenty-four, a young scientist hungry to make his mark. His uncompromisingly honest account of the heady days of their thrilling sprint against other world-class researchers to solve one of science's greatest mysteries gives a dazzlingly clear picture of a world of brilliant scientists with great gifts, very human ambitions, and bitter rivalries. With humility unspoiled by false modesty, Watson relates his and Crick's desperate efforts to beat Linus Pauling to the Holy Grail of life sciences, the identification of the basic building block of life. Never has a scientist been so truthful in capturing in words the flavor of his work.

the double helix: *Double Helix* Nancy Werlin, 2009

the double helix: *In Search of the Double Helix* John Gribbin, 1987 Chapters cover such topics as the theories of Darwin, Mendel, and Barbara McClintock, quantum chemistry, and the molecules of life.

the double helix: *The 100 Best Nonfiction Books of All Time* Robert McCrum, 2018 Beginning in 1611 with the King James Bible and ending in 2014 with Elizabeth Kolbert's 'The Sixth Extinction', this extraordinary voyage through the written treasures of our culture examines universally-acclaimed classics such as Pepys' 'Diaries', Charles Darwin's 'The Origin of Species', Stephen Hawking's 'A Brief History of Time' and a whole host of additional works --

the double helix: *DNA* James D. Watson, Andrew Berry, 2009-01-21 Fifty years ago, James D. Watson, then just twentyfour, helped launch the greatest ongoing scientific quest of our time. Now, with unique authority and sweeping vision, he gives us the first full account of the genetic revolution—from Mendel's garden to the double helix to the sequencing of the human genome and beyond. Watson's lively, panoramic narrative begins with the fanciful speculations of the ancients as to why "like begets like" before skipping ahead to 1866, when an Austrian monk named Gregor Mendel first deduced the basic laws of inheritance. But genetics as we recognize it today—with its capacity, both thrilling and sobering, to manipulate the very essence of living things—came into being only with the rise of molecular investigations culminating in the breakthrough discovery of the structure of DNA, for which Watson shared a Nobel prize in 1962. In the DNA molecule's graceful curves was the key to a whole new science. Having shown that the secret of life is chemical, modern genetics has set mankind off on a journey unimaginable just a few decades ago. Watson provides the general reader with clear explanations of molecular processes and emerging technologies. He shows us how DNA continues to alter our understanding of human origins, and of our identities as groups and as individuals. And with the insight of one who has remained close to every advance in research since the double helix, he reveals how genetics has unleashed a wealth of possibilities to alter the human condition—from genetically modified foods to genetically modified babies—and transformed itself from a domain of pure research into one of big business as well. It is a sometimes topsy-turvy world full of great minds and great egos, driven by ambitions to improve the human condition as well as to improve investment portfolios, a world vividly captured in these pages. Facing a future of choices and social and ethical implications of which we dare not remain uninformed, we could have no better guide than James Watson, who leads us with the same bravura storytelling that made *The Double Helix* one of the most successful books on science ever published. Infused with a scientist's awe at nature's marvels and a humanist's profound sympathies, *DNA* is destined to become the classic telling of the defining scientific saga of our age.

the double helix: *Double Helix* James D. Watson, 1998-02-27 Portions of this book were first published in *The Atlantic* monthly.

the double helix: *The Double Helix Structure of DNA* R. N. Albright, 2013-12-15 This unique look at the study of DNA goes beyond the science and explores the lives of four great scientists: James Watson, Francis Crick, Maurice Wilkins, and Rosalind Franklin. It was through their complex personal interactions and their devotion to the science that led to breakthroughs surrounding the structure of DNA and our modern understanding of genetics. Readers can learn that science is not about one individual and his or her discoveries, but is the work of many. Numerous scientific breakthroughs can be attributed to competition and rivalry.

the double helix: *Rosalind Franklin and DNA* Anne Sayre, 2000 A biography of one of the

four scientists responsible for the discovery of the molecular structure of DNA, the key to heredity in all living things.

the double helix: *Untangling the Double Helix* James C. Wang, 2009 The problem of unraveling two intertwined strands during the duplication of DNA was recognized shortly after the proposal of the DNA double helix structure in 1953. A group of enzymes called DNA topoisomerases solve this problem by breaking and rejoining DNA molecules in a controlled manner, thereby allowing strands to be passed through each other and thus untangled—not just during DNA replication, but also during many other basic cellular processes. Because of their intimate involvement in the workings of the cell, topoisomerases are also the logical targets of many antibiotics (including Cipro) and anticancer agents. This book, written by James Wang, the discoverer of the first topoisomerase and a leader in the field since, presents ten chapters covering the historical backdrop of the DNA entanglement problem and the discovery of the DNA topoisomerases, how DNA topoisomerases perform their magic in DNA replication, transcription, genetic recombination and chromosome condensation, and how they are targets of therapeutic agents. The book should appeal to readers from undergraduates upwards with interests in the biological and clinical aspects of topoisomerase function, or in the mathematics and physics of topology.

the double helix: *Molecular Biology of the Cell*, 2002

the double helix: **The Annotated and Illustrated Double Helix** James D. Watson, Alexander Gann, 2012-11-06 In his 1968 memoir, *The Double Helix* (Readers Union, 1969), the brash young scientist James Watson chronicled the drama of the race to identify the structure of DNA, a discovery that would usher in the era of modern molecular biology. After half a century, the implications of the double helix keep rippling outward; the tools of molecular biology have forever transformed the life sciences and medicine. *The Annotated and Illustrated Double Helix* adds new richness to the account of the momentous events that led the charge.

the double helix: *Double Helix* Glen Phelan, 2006 An illustrated introduction to the discovery of DNA for young readers.

the double helix: *Maurice Wilkins: The Third Man of the Double Helix* Maurice Wilkins, 2005-07-14 The Nobel Prize for the discovery of the structure of DNA was given to three scientists - James Watson, Francis Crick, and Maurice Wilkins. It was the experimental work of Wilkins and his colleague Rosalind Franklin that provided the clues to the structure. Here, Wilkins, who died in 2004, gives us his own account of his life, his early work in physics, the tensions and exhilaration of working on DNA, and his much discussed difficult relationship with his colleague Rosalind. This is a highly readable, and often moving account from a highly distinguished scientist who played one of the key roles in the historic discovery of the molecule behind inheritance.

the double helix: **What Mad Pursuit** Francis Crick, 2008-08-06 Candid, provocative, and disarming, this is the widely-praised memoir of the co-discoverer of the double helix of DNA.

the double helix: **DNA** James D. Watson, Andrew Berry, Kevin Davies, 2017-08-22 The definitive insider's history of the genetic revolution--significantly updated to reflect the discoveries of the last decade. James D. Watson, the Nobel laureate whose pioneering work helped unlock the mystery of DNA's structure, charts the greatest scientific journey of our time, from the discovery of the double helix to today's controversies to what the future may hold. Updated to include new findings in gene editing, epigenetics, agricultural chemistry, as well as two entirely new chapters on personal genomics and cancer research. This is the most comprehensive and authoritative exploration of DNA's impact--practical, social, and ethical--on our society and our world.

the double helix: **Spillover: Animal Infections and the Next Human Pandemic** David Quammen, 2012-10 A masterpiece of science reporting that tracks the animal origins of emerging human diseases.

the double helix: *Avoid Boring People* James D. Watson, 2010-05-04 From Nobel Prize-winning scientist James D. Watson, a living legend for his work unlocking the structure of DNA, comes this candid and entertaining memoir, filled with practical advice for those starting out their academic careers. In *Avoid Boring People*, Watson lays down a life's wisdom for getting ahead in a competitive

world. Witty and uncompromisingly honest, he shares his thoughts on how young scientists should choose the projects that will shape their careers, the supreme importance of collegiality, and dealing with competitors within the same institution. It's an irreverent romp through Watson's colorful career and an indispensable guide to anyone interested in nurturing the life of the mind.

the double helix: The Double Helix James Watson, 2012-09-06 The story of the most significant biological breakthrough of the century - the discovery of the structure of DNA. 'It is a strange model and embodies several unusual features. However, since DNA is an unusual substance, we are not hesitant in being bold' By elucidating the structure of DNA, the molecule underlying all life, Francis Crick and James Watson revolutionised biochemistry. At the time, Watson was only 24. His uncompromisingly honest account of those heady days lifts the lid on the real world of great scientists, with their very human faults and foibles, their petty rivalries and driving ambition. Above all, he captures the extraordinary excitement of their desperate efforts to beat their rivals at King's College to the solution to one of the great enigmas of the life sciences.

the double helix: Molecular Structure of Nucleic Acids, 1953

the double helix: Double Helix Eileen Merriman, 2021-08-31 Would you want to know what awaits you? Would you want to be in control of your life . . . and death? What would you do for love? 'Sooner or later, willingly or unwillingly, he's going to leave you.' The words cut deep. Emily knows Jake is not like his father; he'd never leave her willingly. But if he has inherited his mother's genes, then Huntington's disease is more than likely to take him away. He may even make the same request his mother made, when Jake was still a teenager: to end the suffering for good.

the double helix: Rosalind Franklin Brenda Maddox, 2013-02-26 In 1962, Maurice Wilkins, Francis Crick, and James Watson received the Nobel Prize, but it was Rosalind Franklin's data and photographs of DNA that led to their discovery. Brenda Maddox tells a powerful story of a remarkably single-minded, forthright, and tempestuous young woman who, at the age of fifteen, decided she was going to be a scientist, but who was airbrushed out of the greatest scientific discovery of the twentieth century.

the double helix: Mapping and Sequencing the Human Genome National Research Council, Division on Earth and Life Studies, Commission on Life Sciences, Committee on Mapping and Sequencing the Human Genome, 1988-01-01 There is growing enthusiasm in the scientific community about the prospect of mapping and sequencing the human genome, a monumental project that will have far-reaching consequences for medicine, biology, technology, and other fields. But how will such an effort be organized and funded? How will we develop the new technologies that are needed? What new legal, social, and ethical questions will be raised? Mapping and Sequencing the Human Genome is a blueprint for this proposed project. The authors offer a highly readable explanation of the technical aspects of genetic mapping and sequencing, and they recommend specific interim and long-range research goals, organizational strategies, and funding levels. They also outline some of the legal and social questions that might arise and urge their early consideration by policymakers.

the double helix: Concepts of Biology Samantha Fowler, Rebecca Roush, James Wise, 2023-05-12 Black & white print. Concepts of Biology is designed for the typical introductory biology course for nonmajors, covering standard scope and sequence requirements. The text includes interesting applications and conveys the major themes of biology, with content that is meaningful and easy to understand. The book is designed to demonstrate biology concepts and to promote scientific literacy.

the double helix: Science in Action Bruno Latour, 1987 From weaker to stronger rhetoric : literature - Laboratories - From weak points to strongholds : machines - Insiders out - From short to longer networks : tribunals of reason - Centres of calculation.

the double helix: Genetics 101 Beth Skwarecki, 2018-07-17 A clear and straightforward explanation of genetics in this new edition of the popular 101 series. Our genetic makeup determines so much about who we are, and what we pass on to our children—from eye color, to height, to health, and even our longevity. Genetics 101 breaks down the science of how genes are

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the double helix: Life at the Speed of Light J. Craig Venter, 2014-09-30 "Venter instills awe for biology as it is, and as it might become in our hands." —Publishers Weekly On May 20, 2010, headlines around the world announced one of the most extraordinary accomplishments in modern science: the creation of the world's first synthetic lifeform. In *Life at the Speed of Light*, scientist J. Craig Venter, best known for sequencing the human genome, shares the dramatic account of how he led a team of researchers in this pioneering effort in synthetic genomics—and how that work will have a profound impact on our existence in the years to come. This is a fascinating and authoritative study that provides readers an opportunity to ponder afresh the age-old question "What is life?" at the dawn of a new era of biological engineering.

the double helix: Explorers of the Black Box Susan Allport, 2016-06-28 *Explorers of the Black Box* is a scientific adventure story. The "Black Box" is the brain. The "Explorers" are neuroscientists in search of how nerve cells record memories, and they are as ruthless and dauntless as any soldiers of fortune. The book centers around the early, often-controversial research Nobel Prize-winner Eric Kandel. It takes readers behind the scenes of laboratories at Woods Hole, Columbia, Yale, and Princeton to create an absorbing account of how the brain works and of how science itself works.

the double helix: A Passion for DNA James D. Watson, 2001 A principal architect and visionary of the new biology, a Nobel Prize-winner at 34 and best-selling author at 40 (*The Double Helix*), James D. Watson had the authority, flair, and courage to take an early and prominent role as commentator on the march of DNA science and its implications for society. In essays for publications large and small, and in lectures around the world, he delivered what were, in effect, dispatches from the front lines of the revolution. Outspoken and sparkling with ideas and opinions, a selection of them is collected for the first time in this volume. Copyright © Libri GmbH. All rights reserved.

the double helix: Explorer Academy Trudi Strain Trueit, 2018 Twelve-year-old Cruz Coronado leaves his home in Hawaii to study and travel with other young people invited to attend the elite Explorer Academy in Washington, D.C., but a family connection to the organization could jeopardize his future.

the double helix: The Immortal Life of Henrietta Lacks Rebecca Skloot, 2010-02-02 #1 NEW YORK TIMES BESTSELLER • "The story of modern medicine and bioethics—and, indeed, race relations—is refracted beautifully, and movingly."—Entertainment Weekly NOW A MAJOR MOTION PICTURE FROM HBO® STARRING OPRAH WINFREY AND ROSE BYRNE • ONE OF THE "MOST INFLUENTIAL" (CNN), "DEFINING" (LITHUB), AND "BEST" (THE PHILADELPHIA INQUIRER) BOOKS OF THE DECADE • ONE OF ESSENCE'S 50 MOST IMPACTFUL BLACK BOOKS OF THE PAST 50 YEARS • WINNER OF THE CHICAGO TRIBUNE HEARTLAND PRIZE FOR NONFICTION NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The New York Times Book Review • Entertainment Weekly • O: The Oprah Magazine • NPR • Financial Times • New York • Independent (U.K.) • Times (U.K.) • Publishers Weekly • Library Journal • Kirkus Reviews • Booklist • Globe and Mail Her name was Henrietta Lacks, but scientists know her as HeLa. She was a poor Southern tobacco farmer who worked the same land as her slave ancestors, yet her cells—taken without her knowledge—became one of the most important tools in medicine: The first "immortal" human cells grown in culture, which are still alive today, though she has been dead for more than sixty years. HeLa cells were vital for developing the polio vaccine; uncovered secrets of cancer, viruses, and the atom bomb's effects; helped lead to important advances like in vitro fertilization, cloning, and gene mapping; and have been bought and sold by the billions. Yet Henrietta Lacks remains virtually unknown, buried in an unmarked grave. Henrietta's family did not learn of her "immortality" until more than twenty years after her death, when scientists investigating HeLa began using her

husband and children in research without informed consent. And though the cells had launched a multimillion-dollar industry that sells human biological materials, her family never saw any of the profits. As Rebecca Skloot so brilliantly shows, the story of the Lacks family—past and present—is inextricably connected to the dark history of experimentation on African Americans, the birth of bioethics, and the legal battles over whether we control the stuff we are made of. Over the decade it took to uncover this story, Rebecca became enmeshed in the lives of the Lacks family—especially Henrietta’s daughter Deborah. Deborah was consumed with questions: Had scientists cloned her mother? Had they killed her to harvest her cells? And if her mother was so important to medicine, why couldn’t her children afford health insurance? Intimate in feeling, astonishing in scope, and impossible to put down, *The Immortal Life of Henrietta Lacks* captures the beauty and drama of scientific discovery, as well as its human consequences.

the double helix: *The Double Helix* James D. Watson, 1970

the double helix: *Working Memory* Robert Logie, Valérie Camos, Nelson Cowan, 2021-01-05 Working memory refers to how we keep track of what we are doing moment to moment throughout our waking lives. This book brings together in one volume, state-of-the-science chapters written by the most productive and well known working memory researchers worldwide.

the double helix: *50 Years of DNA* J. Clayton, C. Dennis, 2016-04-30 Crick and Watson's discovery of the structure of DNA fifty years ago marked one of the great turning points in the history of science. Biology, immunology, medicine and genetics have all been radically transformed in the succeeding half-century, and the double helix has become an icon of our times. This fascinating exploration of a scientific phenomenon provides a lucid and engaging account of the background and context for the discovery, its significance and afterlife, while a series of essays by leading scientists, historians and commentators offers uniquely individual perspectives on DNA and its impact on modern science and society.

the double helix: *James Watson and Francis Crick* Matt Aniss, 2014-08-01 Watson and Crick are synonymous with DNA, the instructions for life. But how did these scientists figure out something as elusive and complicated as the structure of DNA? Readers will learn about the different backgrounds of these two gifted scientists and what ultimately led them to each other. Their friendship, shared interests, and common obsessions held them together during the frenzied race to unlock the mysteries of DNA in the mid-twentieth century. Along with explanations about how DNA works, the repercussions of the dynamic duo's eventual discovery will especially fascinate young scientists.

the double helix: Explorer Academy: the Star Dunes (Book 4) Trudi Trueit, 2020 Cruz and his fellow recruits tackle challenging missions to dispense life-saving medication to gorillas, thwart pangolin poachers, and capture images of the last known cheetahs in Namibia--all the while discovering that protecting the world's threatened species is a dangerous business. Things turn deadly for Lani, Sailor, Emmett, and Cruz as they search for the fourth piece of Cruz's mom's cipher. Cruz knows it's not going to be easy, but will an unexpected guest bring a disastrous end to the search? In this global game of cat and mouse, one mistake may cost you the ultimate price--

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