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Baum and Smith, both professors evolutionary biology and researchers in the field of systematics, present this highly accessible introduction to phylogenetics and its importance in modern biology. Ever since Darwin, the evolutionary histories of organisms have been portrayed in the form of branching trees or "phylogenies." However, the broad significance of the phylogenetic trees has come to be appreciated only quite recently. Phylogenetics has myriad applications in biology, from discovering the features present in ancestral organisms, to finding the sources of invasive species and infectious diseases, to identifying our closest living (and extinct) hominid relatives. Taking a conceptual approach, *Tree Thinking* introduces readers to the interpretation of phylogenetic trees, how these trees can be reconstructed, and how they can be used to answer biological questions. Examples and vivid metaphors are incorporated throughout, and each chapter concludes with a set of problems, valuable for both students and teachers. *Tree Thinking* is must-have textbook for any student seeking a solid foundation in this fundamental area of evolutionary biology.

Humans, especially children, are naturally curious. Yet, people often balk at the thought of learning science--the "eyes glazed over" syndrome. Teachers may find teaching science a major challenge in an era when science ranges from the hardly imaginable quark to the distant, blazing quasar. *Inquiry and the National Science Education Standards* is the book that educators have been waiting for--a practical guide to teaching inquiry and teaching through inquiry, as recommended by the National Science Education Standards. This will be an important resource for educators who must help school boards, parents, and teachers

understand "why we can't teach the way we used to." "Inquiry" refers to the diverse ways in which scientists study the natural world and in which students grasp science knowledge and the methods by which that knowledge is produced. This book explains and illustrates how inquiry helps students learn science content, master how to do science, and understand the nature of science. This book explores the dimensions of teaching and learning science as inquiry for K-12 students across a range of science topics. Detailed examples help clarify when teachers should use the inquiry-based approach and how much structure, guidance, and coaching they should provide. The book dispels myths that may have discouraged educators from the inquiry-based approach and illuminates the subtle interplay between concepts, processes, and science as it is experienced in the classroom. *Inquiry and the National Science Education Standards* shows how to bring the standards to life, with features such as classroom vignettes exploring different kinds of inquiries for elementary, middle, and high school and Frequently Asked Questions for teachers, responding to common concerns such as obtaining teaching supplies. Turning to assessment, the committee discusses why assessment is important, looks at existing schemes and formats, and addresses how to involve students in assessing their own learning achievements. In addition, this book discusses administrative assistance, communication with parents, appropriate teacher evaluation, and other avenues to promoting and supporting this new teaching paradigm.

Ten Strategies of a World-Class Cyber Security Operations Center conveys MITRE's accumulated expertise on enterprise-grade computer network defense. It covers ten key qualities of leading Cyber Security Operations Centers (CSOCs), ranging from their structure and organization, to processes that best enable smooth operations, to approaches that extract

maximum value from key CSOC technology investments. This book offers perspective and context for key decision points in structuring a CSOC, such as what capabilities to offer, how to architect large-scale data collection and analysis, and how to prepare the CSOC team for agile, threat-based response. If you manage, work in, or are standing up a CSOC, this book is for you. It is also available on MITRE's website, www.mitre.org.

REA's MAXnotes for Alex Haley's *The Autobiography of Malcolm X* MAXnotes offer a fresh look at masterpieces of literature, presented in a lively and interesting fashion. Written by literary experts who currently teach the subject, MAXnotes will enhance your understanding and enjoyment of the work. MAXnotes are designed to stimulate independent thought about the literary work by raising various issues and thought-provoking ideas and questions.

MAXnotes cover the essentials of what one should know about each work, including an overall summary, character lists, an explanation and discussion of the plot, the work's historical context, illustrations to convey the mood of the work, and a biography of the author. Each chapter is individually summarized and analyzed, and has study questions and answers.

Amazon.com Review Malcolm X's searing memoir belongs on the small shelf of great autobiographies. The reasons are many: the blistering honesty with which he recounts his transformation from a bitter, self-destructive petty criminal into an articulate political activist, the continued relevance of his militant analysis of white racism, and his emphasis on self-respect and self-help for African Americans. And there's the vividness with which he depicts black popular culture--try as he might to criticize those lindy hops at Boston's Roseland dance hall from the perspective of his Muslim faith, he can't help but make them sound pretty wonderful. These are but a few examples. The Autobiography of Malcolm X limns an archetypal journey

from ignorance and despair to knowledge and spiritual awakening. When Malcolm tells coauthor Alex Haley, "People don't realize how a man's whole life can be changed by one book," he voices the central belief underpinning every attempt to set down a personal story as an example for others. Although many believe his ethic was directly opposed to Martin Luther King Jr.'s during the civil rights struggle of the '60s, the two were not so different. Malcolm may have displayed a most un-Christian distaste for loving his enemies, but he understood with King that love of God and love of self are the necessary first steps on the road to freedom.

--Wendy Smith Review Biography, published in 1965, of the American black militant religious leader and activist who was born Malcolm Little. Written by Alex Haley, who had conducted extensive audiotaped interviews with Malcolm X just before his assassination in 1965, the book gained renown as a classic work on black American experience. The Autobiography recounts the life of Malcolm X from his traumatic childhood plagued by racism to his years as a drug dealer and pimp, his conversion to the Black Muslim sect (Nation of Islam) while in prison for burglary, his subsequent years of militant activism, and the turn late in his life to more orthodox Islam. --The Merriam-Webster Encyclopedia of Literature

The informal, student-friendly tone of these rhetorically-organized rhetoric/reader/handbooks provides step-by-step instructions on writing a variety of 500-800-word essays.

Explores the appearance, characteristics, and behavior of protists and fungi, lifeforms which are neither plants nor animals, using specific examples such as algae, mold, and mushrooms.

The United States and China: two nations drastically different in demographics, history, political structures, and education systems. Despite these differences, educators in each country have discovered they have much to learn from one another. The United States looks

east and is captivated by the high assessment scores that many Chinese students achieve. China looks west and is enamored with how the United States fosters innovation and creativity in students. Teachers are increasingly looking across borders to expand, adapt, and offer their students a more balanced education. West Meets East is based on the fundamental premise that strong teaching is at the heart of educational quality and that we all benefit from understanding the practices and professional thinking of exemplary teachers. With this in mind, Grant and her colleagues set out to discover which beliefs and strategies of effective teachers can cross the cultural divide and help students in each nation make breakthrough advances. As educators, it's important to understand that even though we're setting new goals and improving outcomes, excellence is a moving target. In the globally connected 21st century, educational innovations in one country can reset the bar for students around the world. Only by learning from one another can we be sure all our students remain competitive and successful. Your hands-on study guide to the inner world of the cell Need to get a handle on molecular and cell biology? This easy-to-understand guide explains the structure and function of the cell and how recombinant DNA technology is changing the face of science and medicine. You discover how fundamental principles and concepts relate to everyday life. Plus, you get plenty of study tips to improve your grades and score higher on exams! Explore the world of the cell — take a tour inside the structure and function of cells and see how viruses attack and destroy them Understand the stuff of life (molecules) — get up to speed on the structure of atoms, types of bonds, carbohydrates, proteins, DNA, RNA, and lipids Watch as cells function and reproduce — see how cells communicate, obtain matter and energy, and copy themselves for growth, repair, and reproduction Make sense of genetics — learn how parental cells organize their DNA during

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sexual reproduction and how scientists can predict inheritance patterns Decode a cell's underlying programming — examine how DNA is read by cells, how it determines the traits of organisms, and how it's regulated by the cell Harness the power of DNA — discover how scientists use molecular biology to explore genomes and solve current world problems Open the book and find: Easy-to-follow explanations of key topics The life of a cell — what it needs to survive and reproduce Why molecules are so vital to cells Rules that govern cell behavior Laws of thermodynamics and cellular work The principles of Mendelian genetics Useful Web sites Important events in the development of DNA technology Ten great ways to improve your biology grade

Sensors are everywhere. Small, flexible, economical, and computationally powerful, they operate ubiquitously in environments. They compile massive amounts of data, including information about air, water, and climate. Never before has such a volume of environmental data been so broadly collected or so widely available. Grappling with the consequences of wiring our world, Program Earth examines how sensor technologies are programming our environments. As Jennifer Gabrys points out, sensors do not merely record information about an environment. Rather, they generate new environments and environmental relations. At the same time, they give a voice to the entities they monitor: to animals, plants, people, and inanimate objects. This book looks at the ways in which sensors converge with environments to map ecological processes, to track

the migration of animals, to check pollutants, to facilitate citizen participation, and to program infrastructure. Through discussing particular instances where sensors are deployed for environmental study and citizen engagement across three areas of environmental sensing, from wild sensing to pollution sensing and urban sensing, Program Earth asks how sensor technologies specifically contribute to new environmental conditions. What are the implications for wiring up environments? How do sensor applications not only program environments, but also program the sorts of citizens and collectives we might become? Program Earth suggests that the sensor-based monitoring of Earth offers the prospect of making new environments not simply as an extension of the human but rather as new “technogeographies” that connect technology, nature, and people.

"What year are you preparing your students for? 1973? 1995? Can you honestly say that your school's curriculum and the program you use are preparing your students for 2015 or 2020? Are you even preparing them for today?" With those provocative questions, author and educator Heidi Hayes Jacobs launches a powerful case for overhauling, updating, and injecting life into the K-12 curriculum. Sharing her expertise as a world-renowned curriculum designer and calling upon the collective wisdom of 10 education thought leaders, Jacobs provides insight and inspiration in the following key areas: * Content and

assessment--How to identify what to keep, what to cut, and what to create, and where portfolios and other new kinds of assessment fit into the picture. * Program structures--How to improve our use of time and space and groupings of students and staff. * Technology--How it's transforming teaching, and how to take advantage of students' natural facility with technology. * Media literacy--The essential issues to address, and the best resources for helping students become informed users of multiple forms of media. * Globalization--What steps to take to help students gain a global perspective. * Sustainability--How to instill enduring values and beliefs that will lead to healthier local, national, and global communities. * Habits of mind--The thinking habits that students, teachers, and administrators need to develop and practice to succeed in school, work, and life. The answers to these questions and many more make Curriculum 21 the ideal guide for transforming our schools into what they must become: learning organizations that match the times in which we live.

In an era of globalization and urbanization, various social, economic, and environmental challenges surround advances in modern biological sciences. Considering how biological knowledge and practice are intrinsically related to building a sustainable relationship between nature and human society, the roles of biology education need to be rethought to respond to issues and changes to

life in this biocentury. This book is a compilation of selected papers from the Twenty Third Biennial Conference of the Asian Association for Biology Education 2010. The title, *Biology Education for Social and Sustainable Development*, demonstrates how rethinking and reconstruction of biology education in the Asia-Pacific region are increasingly grounded in deep understandings of what counts as valuable local knowledge, practices, culture, and ideologies for national and global issues, and education for sustainable development. The 42 papers by eminent science educators from Australia, China, Philippines, Singapore, Taiwan, and the U.S., represent a diversity of views, understandings, and practices in biology education for sustainable development from school to university in diverse education systems and social-cultural settings in the Asia-Pacific region and beyond. The book is an invaluable resource and essential reference for researchers and educators on Asian perspectives and practices on biology education for social and sustainable development.

Transform an in-depth understanding of the new science standards into successful classroom practice. You'll learn how to align instruction and assessment with the science standards and create proficiency scales that can be used to plan all types of lessons. Discover hundreds of ready-to-use proficiency scales derived from the Next Generation Science Standards that are applicable

to specific areas of science instruction.

Laboratory experiences as a part of most U.S. high school science curricula have been taken for granted for decades, but they have rarely been carefully examined. What do they contribute to science learning? What can they contribute to science learning? What is the current status of labs in our nation's high schools as a context for learning science? This book looks at a range of questions about how laboratory experiences fit into U.S. high schools: What is effective laboratory teaching? What does research tell us about learning in high school science labs? How should student learning in laboratory experiences be assessed? Do all students have access to laboratory experiences? What changes need to be made to improve laboratory experiences for high school students? How can school organization contribute to effective laboratory teaching? With increased attention to the U.S. education system and student outcomes, no part of the high school curriculum should escape scrutiny. This timely book investigates factors that influence a high school laboratory experience, looking closely at what currently takes place and what the goals of those experiences are and should be. Science educators, school administrators, policy makers, and parents will all benefit from a better understanding of the need for laboratory experiences to be an integral part of the science curriculum and how that

can be accomplished.

This book originated from a Discussion Group (Teaching Linear Algebra) that was held at the 13th International Conference on Mathematics Education (ICME-13). The aim was to consider and highlight current efforts regarding research and instruction on teaching and learning linear algebra from around the world, and to spark new collaborations. As the outcome of the two-day discussion at ICME-13, this book focuses on the pedagogy of linear algebra with a particular emphasis on tasks that are productive for learning. The main themes addressed include: theoretical perspectives on the teaching and learning of linear algebra; empirical analyses related to learning particular content in linear algebra; the use of technology and dynamic geometry software; and pedagogical discussions of challenging linear algebra tasks. Drawing on the expertise of mathematics education researchers and research mathematicians with experience in teaching linear algebra, this book gathers work from nine countries: Austria, Germany, Israel, Ireland, Mexico, Slovenia, Turkey, the USA and Zimbabwe.

"In Education Nation author Milton Chen draws from extensive experience in media--from his work on Sesame Street in its nascent years to his current role as executive director of the George Lucas Educational Foundation--to support his vision for a new world of learning. Presented in five parts and divided into

"module" chapters, this book examines the ways in which K-12 learning can be revolutionized through innovative reform and the use of technology. Due in large part to new technologies, over the last few decades we've witnessed a huge shift in how we imagine teaching and learning. A good example is the educational revolution sparked by Sesame Street--which in its first season had a goal of teaching preschool-age children the numbers 1 to 10. At the time, experts dismissed it as an unrealistic goal since many kindergarten students were having trouble mastering this simple counting. Yet the research proved that preschool-age children learned those skills and many others directly from the TV screen. Now Sesame Street's curriculum teaches the numbers from 1 to 40. In today's digital age the number of new ways to teach and learn is ever-expanding and includes: television, Google, YouTube, TeacherTube, Facebook, iPhones, video games, GPS devices, open source textbooks, interactive whiteboards; and there are countless examples of ways technology positively impacts student learning--from voice-recognition software that helps children learn to read to translation tools that help teachers communicate with non-English speaking parents. As a result of constant innovation, learning is no longer limited by traditional confines and we're quickly moving beyond students tied to their chairs, desks, and textbooks--and teachers locked away in classrooms."--

CK-12 Biology Teacher's Edition complements the CK-12 Biology Student Edition FlexBook.

This songbook presents information on biochemical pathways set to well-known songs, providing students with an easy way to remember often complicated information. The songs should also serve as end-of-term review material.

E-learning has brought an enormous change to instruction, in terms of both rules and tools. Contemporary education requires diverse and creative uses of media technology to keep students engaged and to keep up with rapid developments in the ways they learn and teachers teach. Media Rich Instruction addresses these requirements with up-to-date learning theory and practices that incorporate innovative platforms for information delivery into traditional areas such as learning skills and learner characteristics. Experts in media rich classroom experiences and online instruction delve into the latest findings on student cognitive processes and motivation to learn while offering multimedia classroom strategies geared to specific curriculum areas. Advances such as personal learning environments, gamification, and the Massive Open Online Course are analyzed in the context of their potential for collaborative and transformative learning. And each chapter features key questions and application activities to make coverage especially practical across grade levels and learner populations.

Among the topics included: Building successful learning experiences online. Language and literacy, reading and writing. Mathematics teaching and learning with and through education technology. Learning science through experiment and practice. Social studies teaching for learner engagement. The arts and Technology. Connecting school to community. At a time when many are pondering the future of academic standards and student capacity to learn, Media Rich Instruction is a unique source of concrete knowledge and useful ideas for current and future researchers and practitioners in media rich instructional strategies and practices.

WonderKnopf Books for Young Readers

The nature of engineering and it's societal impact are covered, as well as the educational and legal requirements needed to become an engineer. Engineers contribute to the development of many innovations that improve life. We investigate how engineers work to meet human needs; great engineering accomplishments of the past; and consider needs that engineering must meet in the future. Engineering design process, how it differs design processes, and how the implementation of the design process effects the quality of the resulting design. The application of the principles of mathematics and science to the creation or modification of components, systems, and processes for the benefit of

society are covered with a focus on the balance between quality, performance, and cost. How engineers use creativity and judgment to solve societal how problems; complex engineering problems are usually solved by teams are covered; as well as the intended desirable consequences and unintended undesirable consequences of engineering.

Volumes in *Writing Spaces: Readings on Writing* offer multiple perspectives on a wide-range of topics about writing, much like the model made famous by Wendy Bishop's "The Subject Is . . ." series. In each chapter, authors present their unique views, insights, and strategies for writing by addressing the undergraduate reader directly. Drawing on their own experiences, these teachers-as-writers invite students to join in the larger conversation about developing nearly every aspect of craft of writing. Consequently, each essay functions as a standalone text that can easily complement other selected readings in writing or writing-intensive courses across the disciplines at any level. Topics in Volume 1 of the series include academic writing, how to interpret writing assignments, motives for writing, rhetorical analysis, revision, invention, writing centers, argumentation, narrative, reflective writing, Wikipedia, patchwriting, collaboration, and genres.

Voted America's Best-Loved Novel in PBS's *The Great American Read* Harper

Lee's Pulitzer Prize-winning masterwork of honor and injustice in the deep South—and the heroism of one man in the face of blind and violent hatred One of the most cherished stories of all time, *To Kill a Mockingbird* has been translated into more than forty languages, sold more than forty million copies worldwide, served as the basis for an enormously popular motion picture, and was voted one of the best novels of the twentieth century by librarians across the country. A gripping, heart-wrenching, and wholly remarkable tale of coming-of-age in a South poisoned by virulent prejudice, it views a world of great beauty and savage inequities through the eyes of a young girl, as her father—a crusading local lawyer—risks everything to defend a black man unjustly accused of a terrible crime.

Everything students need to know to succeed on the Biochemistry portions of the MCAT exam (Medical College Admission Test) including 3 full-length practice tests.

Key Benefit: Fred and Theresa Holtzclaw bring over 40 years of AP Biology teaching experience to this student manual. Drawing on their rich experience as readers and faculty consultants to the College Board and their participation on the AP Test Development Committee, the Holtzclaws have designed their resource to help your students prepare for the AP Exam. * Completely revised to

match the new 8th edition of Biology by Campbell and Reece. * New Must Know sections in each chapter focus student attention on major concepts. * Study tips, information organization ideas and misconception warnings are interwoven throughout. * New section reviewing the 12 required AP labs. * Sample practice exams. * The secret to success on the AP Biology exam is to understand what you must know—and these experienced AP teachers will guide your students toward top scores! Market Description: Intended for those interested in AP Biology.

Modern Poisons bridges the gap between traditional toxicology textbooks and journal articles on cutting-edge science. This accessible book explains basic principles in plain language while illuminating the most important issues in contemporary toxicology. Kolok begins by exploring age-old precepts such as the dose-response relationship and goes on to show exactly how chemicals enter the body and elicit their toxic effect. Kolok then traces toxicology's development, from studies of endocrine-disrupting chemicals in toiletries to the emerging science on prions and epigenetics. Whether studying toxicology itself, public health, or environmental science, readers will develop a core understanding of--and curiosity about--this fast-changing field.

Science as Inquiry was created to fill a vacuum. No other book serves as such a compact, easy-to-understand orientation to inquiry. It's ideal for guiding discussion,

fostering reflection, and helping you enhance your own classroom practices.

Drawing from the author's own work as a lab developer, coordinator, and instructor, this one-of-a-kind text for college biology teachers uses the inquiry method in presenting 40 different lab exercises that make complicated biology subjects accessible to major and nonmajors alike. The volume offers a review of various aspects of inquiry, including teaching techniques, and covers 16 biology topics, including DNA isolation and analysis, properties of enzymes, and metabolism and oxygen consumption. Student and teacher pages are provided for each of the 16 topics.

Reveals the connections between genetics and specific diseases Understand the science and the ethics behind genetics Want to know more about genetics? This non-intimidating guide gets you up to speed on all the fundamentals. From dominant and recessive inherited traits to the DNA double-helix, you get clear explanations in easy-to-understand terms. Plus, you'll see how people are applying genetic science to fight disease, develop new products, solve crimes . . . and even clone cats. Discover: What geneticists do How traits are passed on How genetic counseling works The basics of cloning The role of DNA in forensics The scoop on the Human Genome Project Teachers view homework as an opportunity for students to continue learning after the bell rings. For many students, it's often just the dreaded "H" word. How can educators change the way students view homework while ensuring that they still benefit from the additional learning it provides? It's easy. Flip the learning! In Solving the Homework

Problem by Flipping the Learning, Jonathan Bergmann, the co-founder of the flipped learning concept, shows you how. The book outlines * why traditional homework causes dread and frustration for students, * how flipped learning—completing the harder or more analytical aspects of learning in class as opposed to having students do it on their own—improves student learning, and * how teachers can create flipped assignments that both engage students and advance student learning. Bergmann introduces the idea of flipped videos, and provides step-by-step guidance to make them effective. The book also includes useful forms, a student survey, and a sample letter to send to parents explaining the flipped learning concept. You want your students to learn, and your students want learning to be accessible. With that in mind, read through these pages, flip the learning in your classroom, and watch students get excited about homework!

Vaccinophobia and Vaccine Controversies of the 21st Century Archana Chatterjee, editor Once hailed as a medical miracle, vaccination has come under attack from multiple fronts, including occasionally from within medicine. And while the rates of adverse reactions remain low, suggestions that vaccines can cause serious illness (and even death) are inspiring parents to refuse routine immunizations for their children--ironically, exposing them and others to potentially serious illness.

Vaccinophobia and Vaccine Controversies of the 21st Century explains clearly how this state of affairs came into being, why it persists, and how healthcare professionals can

best respond. Current findings review answers to bedrock questions about known adverse events, what vaccine additives are used for, and real and perceived risks involved in immunization. Perspectives representing pediatricians, family practitioners, nurses, parents, pharmacy professionals, the CDC, and the public health community help the reader sort out legitimate from irrational concerns. In-depth analyses discuss the possibility of links with asthma, cancer, Guillain-Barre syndrome, SIDS, and, of course, autism. Included in the coverage: Communicating vaccine risks and benefits The vaccine misinformation landscape in family medicine Perceived risks from live viral vaccines The media's role in vaccine misinformation Autoimmunity, allergies, asthma, and a relationship to vaccines Vaccines and autism: the controversy that won't go away The conundrums described here are pertinent to practitioners in pediatrics, family medicine, primary care, and nursing to help families with informed decision making. In addition, Vaccinophobia and Vaccine Controversies of the 21st Century should be read by trainees and researchers in child development and maternal and child health as the book's issues will have an impact on future generations of children and their families. Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the

typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand. We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

In 900 text pages, Campbell Biology in Focus emphasizes the essential content and scientific skills needed for success in the college introductory course for biology majors. Each unit streamlines content to best fit the needs of instructors and students, based on surveys, curriculum initiatives, reviews, discussions with hundreds of biology professors, and careful analyses of course syllabi. Every chapter includes a Scientific Skills Exercise that builds skills in graphing, interpreting data, experimental design, and math—skills biology majors need in order to succeed in their upper-level courses. This

briefers book upholds the Campbell hallmark standards of accuracy, clarity, and pedagogical innovation.

The past half-century has witnessed a dramatic increase in the scale and complexity of scientific research. The growing scale of science has been accompanied by a shift toward collaborative research, referred to as "team science." Scientific research is increasingly conducted by small teams and larger groups rather than individual investigators, but the challenges of collaboration can slow these teams' progress in achieving their scientific goals. How does a team-based approach work, and how can universities and research institutions support teams? *Enhancing the Effectiveness of Team Science* synthesizes and integrates the available research to provide guidance on assembling the science team; leadership, education and professional development for science teams and groups. It also examines institutional and organizational structures and policies to support science teams and identifies areas where further research is needed to help science teams and groups achieve their scientific and translational goals. This report offers major public policy recommendations for science research agencies and policymakers, as well as recommendations for individual scientists, disciplinary associations, and research universities. *Enhancing the Effectiveness of Team Science* will be of interest to university research administrators, team science leaders, science faculty, and graduate and postdoctoral students.

This is the second edition of a highly successful textbook (over 50,000 copies sold) in which a highly illustrated, narrative text is combined with easy-to-use thoroughly reliable laboratory protocols. It contains a fully up-to-date collection of 12 rigorously tested and reliable lab experiments in molecular biology, developed at the internationally renowned Dolan DNA

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Learning Center of Cold Spring Harbor Laboratory, which culminate in the construction and cloning of a recombinant DNA molecule. Proven through more than 10 years of teaching at research and nonresearch colleges and universities, junior colleges, community colleges, and advanced biology programs in high school, this book has been successfully integrated into introductory biology, general biology, genetics, microbiology, cell biology, molecular genetics, and molecular biology courses. The first eight chapters have been completely revised, extensively rewritten, and updated. The new coverage extends to the completion of the draft sequence of the human genome and the enormous impact these and other sequence data are having on medicine, research, and our view of human evolution. All sections on the concepts and techniques of molecular biology have been updated to reflect the current state of laboratory research. The laboratory experiments cover basic techniques of gene isolation and analysis, honed by over 10 years of classroom use to be thoroughly reliable, even in the hands of teachers and students with no prior experience. Extensive prelab notes at the beginning of each experiment explain how to schedule and prepare, while flow charts and icons make the protocols easy to follow. As in the first edition of this book, the laboratory course is completely supported by quality-assured products from the Carolina Biological Supply Company, from bulk reagents, to useable reagent systems, to single-use kits, thus satisfying a broad range of teaching applications.

Your no-nonsense guide to genetics With rapid advances in genomic technologies, genetic testing has become a key part of both clinical practice and research. Scientists are constantly discovering more about how genetics plays a role in health and disease, and healthcare providers are using this information to more accurately identify their patients' particular medical

needs. Genetic information is also increasingly being used for a wide range of non-clinical purposes, such as exploring one's ancestry. This new edition of *Genetics For Dummies* serves as a perfect course supplement for students pursuing degrees in the sciences. It also provides science-lovers of all skill levels with easy-to-follow and easy-to-understand information about this exciting and constantly evolving field. This edition includes recent developments and applications in the field of genetics, such as: Whole-genome and whole-exome sequencing Precision medicine and pharmacogenetics Direct-to-consumer genetic testing for health risks Ancestry testing Featuring information on some of the hottest topics in genetics right now, this book makes it easier than ever to wrap your head around this fascinating subject.

"Now a major motion picture! Includes full-color movie photos and exclusive content!"--Dust jacket.

Acknowledging the importance of national standards, offers case studies, tips, and tools to encourage student curiosity and improve achievement in science.

The National Science Foundation funded a synthesis study on the status, contributions, and future direction of discipline-based education research (DBER) in physics, biological sciences, geosciences, and chemistry. DBER combines knowledge of teaching and learning with deep knowledge of discipline-specific science content. It describes the discipline-specific difficulties learners face and the specialized intellectual and instructional resources that can facilitate student understanding. Discipline-Based Education Research is based on a 30-month study built on two workshops held in 2008 to explore evidence on promising practices in undergraduate science, technology, engineering, and mathematics (STEM) education. This book asks questions that are essential to advancing DBER and broadening its impact on

undergraduate science teaching and learning. The book provides empirical research on undergraduate teaching and learning in the sciences, explores the extent to which this research currently influences undergraduate instruction, and identifies the intellectual and material resources required to further develop DBER. Discipline-Based Education Research provides guidance for future DBER research. In addition, the findings and recommendations of this report may invite, if not assist, post-secondary institutions to increase interest and research activity in DBER and improve its quality and usefulness across all natural science disciplines, as well as guide instruction and assessment across natural science courses to improve student learning. The book brings greater focus to issues of student attrition in the natural sciences that are related to the quality of instruction. Discipline-Based Education Research will be of interest to educators, policy makers, researchers, scholars, decision makers in universities, government agencies, curriculum developers, research sponsors, and education advocacy groups.

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