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ANIYA BALLARD

Twelve Years a Slave National Academies Press

This book describes the development of ocean sciences over the past 50 years, highlighting the contributions of the National Science Foundation (NSF) to the field's progress. Many of the individuals who participated in the exciting discoveries in biological oceanography, chemical oceanography, physical oceanography, and marine geology and geophysics describe in the book how the discoveries were made possible by combinations of insightful individuals, new technology, and in some cases, serendipity. In addition to describing the advance of ocean science, the book examines the institutional structures and technology that made the advances possible and presents visions of the field's future. This book is the first-ever documentation of the history of NSF's Division of Ocean Sciences, how the structure of the division evolved to its present form, and the individuals who have been responsible for ocean sciences at NSF as rotators and career staff over the past 50 years. *The Educator's Field Guide* Springer Science & Business Media Plant genetic engineering has revolutionized our ability to produce genetically improved plant varieties. A large portion of our major crops have undergone genetic improvement through the use of recombinant DNA techniques in which microorganisms play a vital role. The cross-kingdom transfer of genes to incorporate novel phenotypes into plants has u

Life on an Ocean Planet ASCD

Explores the history of the chemical element oxygen and explains its chemistry, how it works in the body, and its importance in our lives.

The Story of Nitrogen National Academies Press

When the beautiful orange Monarch on her fall migration route from Canada to Mexico stops to rest at Wichita Falls, Texas, she makes friends with an old tortoise called Hurry. She tells him, "Maybe one day you'll break out of that shell, grow wings, and fly away," and then she is off again with millions of other Monarchs. In the spring, she stops again at Hurry's garden just long enough to lay her eggs and head north to Canada. Embedded in this lyrical and tender fictional presentation are the fascinating facts about the amazing 2,000-mile migration and the life cycle of butterflies. An afterword provides additional scientific data.

Fundamentals of Ecosystem Science The Water Footprint Assessment Manual Setting the Global Standard

Explores the history of the chemical element nitrogen and explains its chemistry, how it is used in industry, and its importance in our lives.

Biology for AP® Courses Prabhat Prakashan

Presents a multifaceted model of understanding, which is based on the premise that people can demonstrate understanding in a variety of ways.

The Story of Oxygen Elsevier

Increased agricultural productivity is a major stepping stone on

the path out of poverty in sub-Saharan Africa and South Asia, but farmers there face tremendous challenges improving production. Poor soil, inefficient water use, and a lack of access to plant breeding resources, nutritious animal feed, high quality seed, and fuel and electricity-combined with some of the most extreme environmental conditions on Earth-have made yields in crop and animal production far lower in these regions than world averages. Emerging Technologies to Benefit Farmers in Sub-Saharan Africa and South Asia identifies sixty emerging technologies with the potential to significantly improve agricultural productivity in sub-Saharan Africa and South Asia. Eighteen technologies are recommended for immediate development or further exploration. Scientists from all backgrounds have an opportunity to become involved in bringing these and other technologies to fruition. The opportunities suggested in this book offer new approaches that can synergize with each other and with many other activities to transform agriculture in sub-Saharan Africa and South Asia.

Electronic Portfolios 2.0 Springer Science & Business Media Oceanographic discontinuities (e. g. frontal systems, upwelling areas, ice edges) are often areas of enhanced biological productivity. Considerable research on the physics and biology of the physical boundaries defining these discontinuities has been accomplished (see [1 D. The interface between water and sediment is the largest physical boundary in the ocean, but has not received a proportionate degree of attention. The purpose of the Nato Advanced Research Workshop (ARW) was to focus on soft-sediment systems by identifying deficiencies in our knowledge of these systems and defining key issues in the management of coastal sedimentary habitats. Marine sediments play important roles in the marine ecosystem and the biosphere. They provide food and habitat for many marine organisms, some of which are commercially important. More importantly from a global perspective, marine sediments also provide "ecosystem goods and services" [2]. Organic matter from primary production in the water column and contaminants scavenged by particles accumulate in sediments where their fate is determined by sediment processes such as bioturbation and biogeochemical cycling. Nutrients are regenerated and contaminants degraded in sediments. Under some conditions, carbon accumulates in coastal and shelf sediments and may be removed from the carbon cycle for millions of years, having a potentially significant impact on global climate change. Sediments also protect coasts. The economic value of services provided by coastal areas has recently been estimated to be on the order of \$12,568 9 10 y" [3], far in excess of the global GNP.

Genetically Engineered Crops CRC Press

Published to glowing praise in 1990, Science for All Americans defined the science-literate American--describing the knowledge, skills, and attitudes all students should retain from their learning experience--and offered a series of recommendations for reforming our system of education in science, mathematics, and technology. Benchmarks for Science Literacy takes this one step further. Created in close consultation with a cross-section of American teachers, administrators, and scientists, Benchmarks

elaborates on the recommendations to provide guidelines for what all students should know and be able to do in science, mathematics, and technology by the end of grades 2, 5, 8, and 12. These grade levels offer reasonable checkpoints for student progress toward science literacy, but do not suggest a rigid formula for teaching. Benchmarks is not a proposed curriculum, nor is it a plan for one: it is a tool educators can use as they design curricula that fit their student's needs and meet the goals first outlined in Science for All Americans. Far from pressing for a single educational program, Project 2061 advocates a reform strategy that will lead to more curriculum diversity than is common today. IBenchmarks emerged from the work of six diverse school-district teams who were asked to rethink the K-12 curriculum and outline alternative ways of achieving science literacy for all students. These teams based their work on published research and the continuing advice of prominent educators, as well as their own teaching experience. Focusing on the understanding and interconnection of key concepts rather than rote memorization of terms and isolated facts, Benchmarks advocates building a lasting understanding of science and related fields. In a culture increasingly pervaded by science, mathematics, and technology, science literacy require habits of mind that will enable citizens to understand the world around them, make some sense of new technologies as they emerge and grow, and deal sensibly with problems that involve evidence, numbers, patterns, logical arguments, and technology--as well as the relationship of these disciplines to the arts, humanities, and vocational sciences--making science literacy relevant to all students, regardless of their career paths. If Americans are to participate in a world shaped by modern science and mathematics, a world where technological know-how will offer the keys to economic and political stability in the twenty-first century, education in these areas must become one of the nation's highest priorities. Together with Science for All Americans, Benchmarks for Science Literacy offers a bold new agenda for the future of science education in this country, one that is certain to prepare our children for life in the twenty-first century.

A Framework for K-12 Science Education New York : Atheneum
Discusses the global cycling of carbon in living things, the addition of new carbon to the world's supply from various sources, and radiocarbon dating of organic matter in fossils.
Biology Stylus Publishing, LLC.

Science, engineering, and technology permeate nearly every facet of modern life and hold the key to solving many of humanity's most pressing current and future challenges. The United States' position in the global economy is declining, in part because U.S. workers lack fundamental knowledge in these fields. To address the critical issues of U.S. competitiveness and to better prepare the workforce, *A Framework for K-12 Science Education* proposes a new approach to K-12 science education that will capture students' interest and provide them with the necessary foundational knowledge in the field. *A Framework for K-12 Science Education* outlines a broad set of expectations for students in science and engineering in grades K-12. These expectations will inform the development of new standards for K-12 science education and, subsequently, revisions to curriculum, instruction, assessment, and professional development for educators. This book identifies three dimensions that convey the core ideas and practices around which science and engineering education in these grades should be built. These three dimensions are: crosscutting concepts that unify the study of science through their common application across science and engineering; scientific and engineering practices; and disciplinary core ideas in the physical sciences, life sciences, and earth and

space sciences and for engineering, technology, and the applications of science. The overarching goal is for all high school graduates to have sufficient knowledge of science and engineering to engage in public discussions on science-related issues, be careful consumers of scientific and technical information, and enter the careers of their choice. *A Framework for K-12 Science Education* is the first step in a process that can inform state-level decisions and achieve a research-grounded basis for improving science instruction and learning across the country. The book will guide standards developers, teachers, curriculum designers, assessment developers, state and district science administrators, and educators who teach science in informal environments.

Microbial Biotechnology in Agriculture and Aquaculture, Vol. 2 Oxford University Press

A module to help students to understand the key concepts of the scientific method. By experiencing the process of scientific inquiry, students come to recognize the role of science in society.

The Living Environment Springer Science & Business Media
Describes Easter Island and tell how people first came to live there and discusses how they built the enormous statues and why.

National Science Foundation 1950-2000 Corwin Press

Reducing carbon dioxide (CO₂) emissions is imperative to stabilizing our future climate. Our ability to reduce these emissions combined with an understanding of how much fossil-fuel-derived CO₂ the oceans and plants can absorb is central to mitigating climate change. In *The Carbon Cycle*, leading scientists examine how atmospheric carbon dioxide concentrations have changed in the past and how this may affect the concentrations in the future. They look at the carbon budget and the "missing sink" for carbon dioxide. They offer approaches to modeling the carbon cycle, providing mathematical tools for predicting future levels of carbon dioxide. This comprehensive text incorporates findings from the recent IPCC reports. New insights, and a convergence of ideas and views across several disciplines make this book an important contribution to the global change literature.

Monarch and Milkweed Barron's Educational Series

Fundamentals of Ecosystem Science, Second Edition, provides a solid introduction to modern ecosystem science, covering land, freshwater and marine environments. Ecosystem science is now applied to address a wide range of environmental problems. Written by respected experts, this updated edition covers major concepts of ecosystem science, biogeochemistry and energetics. Case studies written by leading figures in the field offer insight into how adopting an ecosystem approach has helped solve important intellectual and practical problems. Offers one of the few books on ecosystems to cover both the aquatic and terrestrial realms Features vignettes throughout the book to give real examples of how an ecosystem approach has and continues to create real change Includes synthesis chapters and case studies to take new information and demonstrate applications Features new coverage on human-environment interactions and biological interactions within the environment

Hurry and the Monarch United Nations Publications

Next Generation Science Standards identifies the science all K-12 students should know. These new standards are based on the National Research Council's *A Framework for K-12 Science Education*. The National Research Council, the National Science Teachers Association, the American Association for the Advancement of Science, and Achieve have partnered to create standards through a collaborative state-led process. The standards are rich in content and practice and arranged in a coherent manner across disciplines and grades to provide all

students an internationally benchmarked science education. The print version of Next Generation Science Standards complements the nextgenscience.org website and: Provides an authoritative offline reference to the standards when creating lesson plans Arranged by grade level and by core discipline, making information quick and easy to find Printed in full color with a lay-flat spiral binding Allows for bookmarking, highlighting, and annotating

Next Generation Science Standards Cambridge University Press

A summary of the latest research in this field. The topics comprise the sedimentological examination and physical properties of the sedimentary solid phase, pore water and pore water constituents, organic matter as the driving force of most microbiological processes, biotic and abiotic redox reactions, carbonates and stable isotopes as proxies for paleoclimate reconstruction, metal enrichments in ferromanganese nodules and crusts as well as in hot vents and cold seeps on the seafloor. The current model conceptions lead to the development of different types of computer models, allowing the global mass exchanges between oceans and sediments to be balanced.

Current Trends in Human Ecology Penguin

"The book contains a wealth of data from schools that have been pioneers in the use of electronic portfolios. The authors identify emerging new critical questions, challenges, and opportunities for further development of this genre. A school seeking to integrate this pedagogical strategy will find this to be a helpful reference volume."--Teaching Theology and Religion Higher education institutions of all kinds--across the United States and around the world--have rapidly expanded the use of electronic portfolios in a broad range of applications including general education, the major, personal planning, freshman learning communities, advising, assessing, and career planning. Widespread use creates an urgent need to evaluate the implementation and impact of eportfolios. Using qualitative and quantitative methods, the contributors to this book--all of whom have been engaged with the Inter/National Coalition for Electronic Portfolio Research--have undertaken research on how eportfolios influence learning and the learning environment for students, faculty members, and institutions. This book features emergent results of studies from 20 institutions that have examined effects on student reflection, integrative learning, establishing identity, organizational learning, and designs for learning supported by technology. It also describes how institutions have responded to multiple challenges in eportfolio development, from engaging faculty to going to scale. These studies exemplify how eportfolios can spark

disciplinary identity, increase retention, address accountability, improve writing, and contribute to accreditation. The chapters demonstrate the applications of eportfolios at community colleges, small private colleges, comprehensive universities, research universities, and a state system.

Scientific Assessment of Ozone Depletion, 2014 Children's Press(CT)

Understanding the Earth's carbon cycle is an urgent societal need as well as a challenging intellectual problem. The impacts of human-caused changes on the global carbon cycle will be felt for hundreds to thousands of years. Direct observations of carbon stocks and flows, process-based understanding, data synthesis, and careful modeling are needed to determine how the carbon cycle is being modified, what the consequences are of these modifications, and how best to mitigate and adapt to changes in the carbon cycle and climate. The importance of the carbon cycle is accentuated by its complex interplay with other geochemical cycles (such as nitrogen and water), its critical role in economic and other human systems, and the global scale of its interactions. This book provides an overview of research priorities and Congressional considerations relating to carbon cycle science.

Sources and Methods Sourcebooks, Inc.

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.