

Lab Acid Rain

A lab manual for introductory chemistry. Winner of the Project Kaleidoscope award and supported by the Sloan Foundation. Introduces the environmental chemistry of acid rain and air pollution, along with basic principles of acid-base chemistry and chemical equilibrium in a 35 page introductory section.

This series started in 1981 with the Erice Seminars when the danger of a nuclear East-West confrontation was menacing the world. The volumes reproduce the crucial steps, from the Nuclear Winter to the Strategic Defense Initiative. After the collapse of the U.S.S.R., new emergencies are now to be faced such as the danger of proliferation of Weapons for Mass Destruction (WMD), the North-South confrontation on ecological problems and the new deal for Science and Technology to help developing countries in their struggle for a better standard of life. The Erice Seminars have attracted the attention of world leaders in Science, Technology and Culture. Contents: World Lab (A Zichichi & E P Velikhov) Ozone Depletion (D-Z Ye) Acid Rain and Ecological Catastrophes (S E Schwartz, Q-C Zeng, N Moiseyev & N Sheremetyevsky) Nuclear Reactor Safety (C-G Lin & Z-Q Pan) Start Missiles (T O Morgan, A M Florini & W C Potter & Y-S Zhou et al.) Panel Discussion (A Zichichi) MHD (L-G Yan, M S Zhdanov, E P Velikhov et al., W D Jackson & D F Miller) Greenhouse Effects and Deforestation (M C MacCracken, M I Budyko, C-B Fu, V M Canuto & G L Stenchikov) Destruction of Chemical Weapons (N A Platé, W A Barletta & R Ragaini) The ILSEAT Project (A Zichichi, E P Velikhov, W A Barletta & T D Lee) keywords:

This lab manual provides an interdisciplinary collection of 23 extensively tested environmental chemistry experiments — with extensive introductory background material for each experiment. It covers a broad range of methods and provides detailed instructions on calculation of results. Experiments involve, for example: inorganic and organic profile of sediment and soil cores; the pH of environmental waters and buffer capacity; alkalinity of streams and lakes; trace levels of ions in natural waters; conductivity of natural waters; chloride ion in natural waters; colorimetry and absorption spectra; metals in natural waters and in sediments; atomic absorption spectrometry; the chemical oxygen demand of natural waters and wastewaters; the fluorimetric determination of polycyclic aromatic hydrocarbons; environmental hydrocarbons; air sampling-particulates in urban air; carbon dioxide in the atmosphere; acid rain; decomposition of pollutants with an application to plasticizers, and detergents. For chemists and technicians with environmental agencies.

The focus of the book is on gases. The reader is encouraged to make predictions, perform purpose-driven research, and creatively solve problems presented about gases.

Louie Beuschlein describes the procedures for a laboratory activity that requires the student to determine the effect of acid rain on the germination rate of turnip seeds. This lab is intended to be used with high school science classes. This activity is provided online by the Office for Mathematics, Science, and Technology Education, which is a unit within the Department of Curriculum and Instruction in the College of Education at the University of Illinois at Urbana-Champaign.

Explorations in Environmental Science. These easy-to-use, hands-on explorations are just what you need to get your science curriculum, and your students, into action!

Chemistry in the Community (ChemCom) is a year-long high school chemistry course for college-bound students, structured around community issues related to chemistry. The course is about 50% laboratory-based, and features decision-making activities which give students practice in applying their chemistry knowledge in realistic decision-making situations. Concepts are presented on a "need-to-know" basis, allowing students to experience the use and application of their chemistry learning, leading to a greater sense of motivation and a feeling of ownership of their new knowledge. Because of the nature of the issues covered in the specific units, students learn more organic and biochemistry than in traditional courses, as well as some environmental and industrial chemistry.

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