

Chemistry Education And Sustainability In The Global Age

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~~Transforming Chemistry Education: Models for Transitioning to Green Chemistry Education Education for Sustainability | Jaimie Cloud | TEDxWindham~~
~~Chemistry Education Resources from Beauty of Science **Mapping the Future of Green Chemistry Education Integrating Green Chemistry and Sustainability into a General Chemistry Laboratory Leading Sustainable Chemistry: Education and Career Aspects** Division of Chemical Education (CHED) Green Chemistry: The missing element in chemistry education Student Led Green Chemistry Initiatives Sustainability in Education: Empowering Chemists to Act — Webinar~~
~~Selected Green Chemistry Metrics for EducatorsThe most useless degrees... THE BEST PERSONAL STATEMENT I'VE EVER READ (Cambridge University Example) BEST Chemistry Textbooks for Undergrad Chemistry how to take notes DEPENDING ON THE SUBJECT *study tips from a HARVARD student* | PART 1 Ideas for Teaching Chemistry : The Marvels of Chemistry 5 New Battery Technologies That Could CHANGE EVERYTHING What happens if you cut down all of a city's trees? - Stefan Al~~

~~Have Australian scientists discovered a recycling solution to our plastic problem? | 7.30Sustainability education: Free videos for all to learn \u0026 teach UN Sustainable Development Goals (SDGs): What They Are \u0026 Why They're Important Sustainability \u0026 Green Chemistry — Prof. Thomas Maschmeyer **Chemistry Education Major Snippets** 6. Panel Discussion: Advancing green chemistry education at UC Berkeley and beyond GRASPing Schools, Universities and Industry in the U K through Green Chemistry Edu Green Chemistry - A Sustainable Chemistry !! Green chemistry = social and environmental justice Green Chemistry - Principle 1 | Environmental Chemistry | Chemistry | FuseSchool Sustainability is a global priority Chemistry Education And Sustainability In~~

As part of our newly launched Chemistry, Sustainability and Circular Economy programme, we reflect on how we can ensure the chemistry curriculum supports the future needs of society and our sector, ...

Sustainability in the curriculum

The School has been awarded a silver sustainability award for its labs.The School of Education, Communication and Society has been awarded a silver sustainability award for its laboratories as part of ...

King's College London: School of Education, Communication and Society wins sustainability award

The School of Education, Communication and Society has been awarded a silver sustainability award for its laboratories as part of the King's Sustainability Champions programme. The award recognises ...

School of Education, Communication and Society wins sustainability award

UK hosting COP26 in Glasgow in November. Find out the Royal Society of Chemistry's approach to making sure the chemical sciences play a part in saving and protecting our planet.

Our strategic approach to sustainability

J.B. Hunt shares sustainable environmental and social highlights for 2020, but the company's only emission-reduction target relates to carbon intensity.

J.B. Hunt's sustainability report finds rising emissions, lower carbon intensity

SAMSUNG Malaysia Electronics Sdn Bhd has launched an innovation competition for youths to create solutions for issues relating science, technology, engineering and mathematics (STEM).The "Samsung ...

Samsung 'Solve For Tomorrow 2021' seeks inclusive education, sustainable environment solutions

The outbreak of Covid-19 and its impact certainly amplified the need to bring in faster digitisations in key economic sectors like education and health.

Innovation to help future generations build sustainable growth

In a country heavily at risk from climate change impacts, teachers and students need to understand the threats - and opportunities - better ...

OPINION: It's time to reform India's environmental education

Local firm Kanva was tasked with redesigning the facility, which houses over 250,000 animals and 500 plant species within five ecosystems.

What can Montreal's Biodôme teach us about sustainable design?

Rachel Novick has joined The Morton Arboretum as its first director of sustainability. The new position was created to lead the Arboretum's sustainability initiatives and further develop its pathway ...

Morton Arboretum hires first director of sustainability

I am supporting the female participants of the project so that they can keep going to fight for their lives, just as I am fighting for mine as well Maria's road has not been easy. In addition to ...

Resilient lives, transformative education: Maria's story

The United Nations Food Systems Summit hopes to bring together the science, finance and political commitment to transform global food systems. The goal is to introduce systems that are productive, ...

Q&A: UN Food Systems Summit Opportunity for the World to Unite on Healthy, Fair & Sustainable Food Systems

"The Time Traveler's Wife" can't put a damper on celebrations as the Science Barge reopens to the public with the waning of the pandemic.

Hudson Valley On The Water: The Science Barge On The River

Hema Prado has been named director of sustainability, a new position, at the American Egg Board. She will oversee and develop a new sustainability program and report to Mickey Rubin, PhD, executive ...

New director of sustainability joins American Egg Board

Samsung Malaysia has launched its Solve for Tomorrow 2021 competition, aimed at enhancing Science, Technology, Engineering, and Mathematics or STEM education in Malaysia.

#TECH: Samsung organises competition to drive STEM education in Malaysia

Hema Prado has been named director of sustainability, a new position, at the American Egg Board. She will oversee and develop a new sustainability program and report to Mickey Rubin, PhD, executive ...

American Egg Board creates director of sustainability position

McCann Worldgroup has launched a sustainability department to commit resources to, and drive forward, the network's sustainability agenda. The agency announced that Jaclyn Kaminski, a Director of ...

McCann Worldgroup Launches Sustainability Department

McCann Worldgroup has launched a sustainability department to move the network's sustainability agenda forward. To lead the department, the agency has named Jaclyn Kaminski, a d ...

McCann Worldgroup Launches Sustainability Department, Commits to Net Zero Emissions by 2040

One year after the Summit Sustainable Building Code was implemented by Summit County and most towns, progress has been made toward bringing more new buildings into compliance. The code aims to ...

Sustainable building codes make progress while education efforts continue

To meet the demand sustainably, the Wells Fargo Innovation Incubator (IN 2), a technology incubator and platform funded by the Wells Fargo Foundation and co-administered by the U.S. Department of ...

This edited volume of papers from the twenty first International Conference on Chemical Education attests to our rapidly changing understanding of the chemistry itself as well as to the potentially enormous material changes in how it might be taught in the future. Covering the full range of appropriate topics, the book features work exploring themes as various as e-learning and innovations in instruction, and micro-scale lab chemistry. In sum, the 29 articles published in these pages focus the reader's attention on ways to raise the quality of chemistry teaching and learning, promoting the public understanding of chemistry, deploying innovative technology in pedagogy practice and research, and the value of chemistry as a tool for highlighting sustainability issues in the global community. Thus the ambitious dual aim achieved in these pages is on the one hand to foster improvements in the teaching and communication of chemistry—whether to students or the public, and secondly to promote advances in our broader understanding of the subject that will have positive knock-on effects on the world's citizens and environment. In doing so, the book addresses (as did the conference) the neglect suffered in the chemistry classroom by issues connected to globalization, even as it outlines ways to bring the subject alive in the classroom through the use of innovative technologies.

Educating the next generation of chemists about green chemistry issues, such as waste minimisation and clean synthesis, is vital for environmental sustainability. This book enables green issues to be taught from the underlying principles of all chemistry courses rather than in isolation. Chapters contributed by green chemistry experts from across the globe, with experience in teaching at different academic levels, provide a coherent overview of possible approaches to incorporate green chemistry into existing curriculums. Split into three sections, the book first introduces sustainability and green chemistry education, before focussing on high school green chemistry education initiatives and green chemistry education at undergraduate and post-graduate levels. Useful laboratory experiments and in-class activities to aid teaching are included. This book is a valuable resource for chemical educators worldwide who wish to integrate green chemistry into chemical education in a systematic and holistic way. It is also of interest to anyone wanting to learn more about the different approaches adopted around the world in sustainability education.

Integrating Green and Sustainable Chemistry Principles into Education draws on the knowledge and experience of scientists and educators already working on how to encourage green chemistry integration in their teaching, both within and outside of academia. It highlights current developments in the field and outlines real examples of green chemistry education in practice, reviewing initiatives and approaches that have already proven effective. By considering both current successes and existing barriers that must be overcome to ensure sustainability becomes part of the fabric of chemistry education, the book's authors hope to drive collaboration between disciplines and help lay the foundations for a sustainable future. Draws on the knowledge and expertise of scientists and educators already working to encourage green chemistry integration in their teaching, both within and outside of academia Highlights current developments in the field and outlines real examples of green chemistry education in practice, reviewing initiatives and approaches that have already proven effective Considers both current successes and existing barriers that must be overcome to ensure sustainability

This book is aimed at chemistry teachers, teacher educators, chemistry education researchers, and all those who are interested in increasing the relevance of chemistry teaching and learning as well as students' perception of it. The book consists of 20 chapters. Each chapter focuses on a certain issue related to the relevance of chemistry education. These chapters are based on a recently suggested model of the relevance of science education, encompassing individual, societal, and vocational relevance, its present and future implications, as well as its intrinsic and extrinsic aspects. "Two highly distinguished chemical educators, Ingo Eilks and AviHofstein, have brought together 40 internationally renowned colleagues from 16 countries to offer an authoritative view of chemistry teaching today. Between them, the authors, in 20 chapters, give an exceptional description of the current state of chemical education and signpost the future in both research and in the classroom. There is special emphasis on the many attempts to enthuse students with an understanding of the central science, chemistry, which will be helped by having an appreciation of the role of the science in today's world. Themes which transcend all education such as collaborative work, communication skills, attitudes, inquiry learning and teaching, and problem solving are covered in detail and used in the context of teaching modern chemistry. The book is divided into four parts which describe the individual, the societal, the vocational and economic, and the non-formal dimensions and the editors bring all the disparate leads into a coherent narrative, that will be highly satisfying to experienced and new researchers and to teachers with the daunting task of teaching such an intellectually demanding subject. Just a brief glance at the index and the references will convince anyone interested in chemical education that this book is well worth studying; it is scholarly and readable and has tackled the most important issues in chemical education today and in the foreseeable future." – Professor David Waddington, Emeritus Professor in Chemistry Education, University of York, United Kingdom

Green Chemistry has brought about dramatic changes in the teaching of chemistry that have resulted in increased student excitement for the subject of chemistry, new lecture materials, new laboratory experiments, and a world-wide community of Green Chemistry teachers. This book features the cutting edge of this advance in the teaching of chemistry.

Chemistry is considered to be one of the prime causes of environmental pollution and degradation. The United Nations General Assembly also addressed the environmental challenges in its Sustainable Development Goals (SDGs), which have been adopted in 2015. A closer look shows that to meet these goals chemistry will play an important role. Green chemistry encompasses design and synthesis of environmentally benign chemical processes, green approaches to minimize and/or remediate environmental pollution, the development of biomaterials, biofuel, and bioenergy production, biocatalysis, and policies and ethics in green chemistry. When products in use today become waste, we need to treat that waste so that hazardous substances are not re-circulated into new products. In this context, circular economy is also an important point of discussion, which focuses on recycling, reuse and use of renewable sources. The theme of the International Conference on "Green Chemistry in Environmental Sustainability & Chemical Education (ICGC-2016) held in Delhi from 17-18 November 2016 was to discuss the emerging green trends in the direction of sustainability and environmental safety. ICGC-2016 consisted of keynote, plenary and invited lectures, panel discussion, contributed oral papers and poster presentations. The conference provided a platform for high school students, undergraduate and postgraduate students, teaching fraternity and young researchers to interact with eminent scientists and academicians from all over the world who shared their valuable views, experience and research on the harmonious methods in chemistry for a sustainable environment. This volume of proceedings from the conference provides an opportunity for readers to engage with a selection of refereed papers that were presented during the ICGC-2016 conference. The overarching goal of this book is to discuss most recent innovations and concerns in green chemistry as well as practical challenges encountered and solutions adopted to remediate a scathed environment into a pristine one. It includes an extensive variety of contributions from participants of ICGC-2016 that demonstrate the importance of multidisciplinary and interdisciplinary approach to problem solving within green chemistry and environmental management. The proceedings is thus a green chemistry monograph resulting from the fruitful deliberations in the conference, which will deeply enhance awareness about our responsibility towards the environment.

The last decade has seen a huge interest in green organic chemistry, particularly as chemical educators look to "green" their undergraduate curricula. Detailing published laboratory experiments and proven case studies, this book discusses concrete examples of green organic chemistry teaching approaches from both lecture/seminar and practical perspe

This dissertation is a cumulative doctoral work. It consists of six main chapters outlining five journal articles and a book chapter that discuss a literature review and four studies. The dissertation studies focus on the inclusion of indigenous knowledge (IK) in science and chemistry education to promote education for sustainable development (ESD). The first chapter analyses the general literature background and research framework of the study. This chapter presents an analytical literature review discussed in "A Multi-Perspective Reflection on How Indigenous Knowledge and Related Ideas Can Improve Science Education for Sustainability" (Zidny et al., 2020). It encompasses the theoretical framework, didactic model, educational research framework, and the educational values of the inclusion of IK in science and chemistry education. The second chapter outlines the research background of the Indonesian science curriculum and the current state of implementation of ESD in Indonesia. The significance of indigenous communities for this study is also presented with a special focus on the Baduy community in the Banten province, Java Island, Indonesia. The profile of the Baduy community is discussed in the book chapter "Indigenous Knowledge as a Socio-Cultural Context of Science to Promote Transformative Education for Sustainable Development: Insights into a Case Study on The Baduy Community (Indonesia)" (Zidny & Eilks, 2018) The third chapter presents four major studies that are part of research-based development of didactic teaching-learning-designs on the inclusion of IK and perspectives into science and chemistry education. The first study in this chapter (section 3.1) attempts to mapout and explore indigenous, science-related knowledge from the Baduy community. From the findings, an educational analysis was conducted to identify contexts and content for science learning as well as for integrating indigenous science (ISc) into socioscientific issues-based education. This study is part of the book chapter by Zidny and Eilks (2018) and a paper entitled "Exploring Indigenous Science to Identify Contents and Contexts for Science Learning to Promote Education for Sustainable Development" (Zidny et al., 2021). The second study in chapter 3 (section 3.2) focuses on implementing a first teaching intervention on the integration of IK and Western modern science (WMSc) in chemistry education. The teaching intervention adopted model 3 of the ESD-based pedagogical approaches suggested by Burmeister et al. (2012) focusing on the controversial sustainability issue of pesticides use. The lesson was implemented in two groups on different educational levels, encompassing upper secondary school and university chemistry student teachers. The lesson's main activities start from the controversial issues of pesticides use to encourage learners to think critically, express their arguments, and solve chemistry problems in classroom task activities. Feedback from the learners about the lesson and the learning design was collected. This study is described in "Integrating perspectives from indigenous knowledge and Western science in secondary and higher chemistry learning to contribute to sustainability education" (Zidny & Eilks, 2020). The analysis and evaluation of the students' activities is discussed in the third study in chapter 3 (section 3.3). This study attempted to explore the initial level of students' arguments and their ability to link the context with chemistry concepts. Based on the findings, information from the analysis was used to evaluate and improve the learning design. This study is described in "A case study on students' application of chemical concepts and use of arguments in teaching on the sustainability-oriented chemistry issue of pesticides use under the inclusion of different scientific worldviews" (Zidny et al., 2021, under review a). The final study in chapter 3 (section 3.4) focuses on a second teaching intervention on the inclusion of ISc as a starting point to promote green

and sustainable chemistry education. The teaching intervention adopted models 1 and 2 of ESD-based approaches suggested by Burmeister et al. (2012), namely adopting green chemistry lab practices and content. The lesson was implemented in an environmental chemistry course (elective course) with second-year undergraduate student teachers in Indonesia. This study is described in "Learning about phytochemical aspects of botanical pesticides adapted from ethnoscience as a contribution to green and sustainable chemistry education" (Zidny & Eilks, under review b) Chapter 5 summarizes all the studies in the research project and outlines the implication of the studies. In chapter 6, the published works of the thesis are presented.

Understanding the chemistry underlying sustainable energy is central to any long-term solution to meeting our future energy needs. Chemistry of Sustainable Energy presents chemistry through the lens of several sustainable energy options, demonstrating the breadth and depth of research being carried out to address issues of sustainability and the gl

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