Sélection d'articles en didactique de la chimie

Liens rapides :

- **http://pubs.acs.org/toc/jceda8/current : numéro courant de Journal of Chemical Education** où vous avez la possibilité de consulter les résumés. Si vous souhaitez recevoir la table des matières à chaque nouveau numéro, il vous suffit de prendre l'option “register” (https://account.acs.org/ssoamweb/account/signUp), et ensuite de demander les “E-Mail Alerts” pour les journaux choisis. Pour les étudiants et le personnel UMONS, vous pouvez accéder aux textes complets sur le réseau de l'UMONS ou en activant le VPN, ou via le bureau à distance.
    - Fil RSS des derniers articles parus dans Journal of Chemical Education
- **Chemistry Education Research and Practice : journal de la Royal Society of Chemistry**, accessible sur inscription. Vous pouvez obtenir des alertes via la page http://www.rsc.org/Publishing/Journals/forms/V5profile.asp, ainsi que pour Education in chemistry.
    - Fil RSS des derniers articles parus dans Chemistry Education Research and Practice
- The Chemical Educator - table of contents
- Publications intéressantes (résumés) (sélections d'articles discutés lors de séminaires internes, sur ce wiki)
- Publications intéressantes de chimie-physique, pour travaux personnels d'étudiants,...

> Dans les listes qui suivent, certains articles concernent l'enseignement supérieur et présentent donc un intérêt relatif par rapport au secondaire.

Articles de Journal of Chemical Education

ASAP and/or ACS Editors Choice articles

- ...

Virtual Issues

- Journal of Chemical Education - Resources for Teaching Your Chemistry Class Online: A Free to Read Collection from the American Chemical Society & the ACS Division of Chemical Education
- Laboratory Learning

Cf. aussi le lien virtual collections.

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  - Establishing the Laboratory as the Place to Learn How to Do Chemistry
  - Johnstone's Triangle as a Pedagogical Framework for Flipped-Class Instructional Videos in Introductory Chemistry
  - Introduction to Medicinal Chemistry: A Five-Day Course for High School Students
  - Comprehensive Training of Undergraduates Majoring in Chemical Education by Designing and Implementing a Simple Thread-Based Microfluidic Experiment
  - Simulating the Effects of Excluded-Volume Interactions in Polymer Solutions
  - Sizzle and Fizzle of Bath Bombs: An Inexpensive and Accessible Kinetics Experiment
  - Teaching Principal Component Analysis Using a Free and Open Source Software Program and Exercises Applying PCA to Real-World Examples
  - An Arduino-Based Talking Calorimeter for Inclusive Lab Activities
  - A Closer Examination of the Mechanism of the Hydrogen Peroxide Iodine-Clock Reaction with Respect to the Role of Hypoiodite Species
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  - Design of Culinary Transformations: A Chemistry Course for Nonscience Majors | Journal of Chemical Education
  - Introducing Nonscience Majors to Science Literacy via a Laboratory and Lecture Beer Brewing Course
  - Property Information in Substance Records in Major Web-Based Chemical Information and Data Retrieval Tools: Understanding Content, Search Opportunities, and Application to Teaching
  - Using Augmented Reality to Stimulate Students and Diffuse Escape Game Activities to Larger Audiences
  - Playing a Board Game to Learn Bioenergy and Biofuels Topics in an Interactive, Engaging Context
  - Relating ΔHvap of Organic Liquids to Intermolecular Forces: Simple Modifications of a Classic General Chemistry Experiment
  - Visualizing 3D Molecular Structures Using an Augmented Reality App
  - Monte Carlo Uncertainty Propagation with the NIST Uncertainty Machine
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  - Exploring Students' Understanding of Resonance and Its Relationship to Instruction
  - Didaktik Models in Chemistry Education
  - Probing the Mechanism of Bubble Nucleation in and the Effect of Atmospheric Pressure on the Candy–Cola Soda Geyser
  - Designing and Using an Atomic Model Kit with H, C, N, and O Model Atoms Having a Mass Ratio of 1:12:14:16 to Teach the Concept of Mole and Associated Stoichiometric Relationships
  - Interactive 3D Visualization of Chemical Structure Diagrams Embedded in Text to Aid Spatial Learning Process of Students
  - Platonic Solids and Their Programming: A Geometrical Approach
  - Constructing, Troubleshooting, and Using Absorption Colorimeters to Integrate Chemistry and Engineering
  - Curve Fitting, Linear Algebra, and Solver in an Analytical Chemistry Course: A Facile and Safe Activity Suitable for the Classroom Setting

    - Elephant’s Toothpaste Used as a Qualitative Demonstration of Rate versus Temperature
    - Phosphate in Soils: An Undergraduate Exploration of Soil Texture, Chemistry, and Amendment
    - Lab Cooked MOF for CO2 Capture: A Sustainable Solution to Waste Management
    - Low-Cost 3D-Printed Polarimeter
    - Data Functionalization for Gas Chromatography in Python
    - Leavening Agents: The Chemistry of Baking Discovered with a Computer-Based Learning
    - Changes of CO2 Concentration and Heat Illustrate Why the Flame Is Extinguished in the Candle-and-Cylinder Experiment
    - The Blue Bottle Experiment Revisited: How Much Oxygen?
    - Comment on “Should Organic Chemistry Be Taught as Science?”
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    - The Emerging Role of Prepublication in Chemistry Education
    - Analysis of Two Definitions of the Mole That Are in Simultaneous Use, and Their Surprising Consequences
    - Impact of Representations in Assessments on Student Performance and Equity
    - Restructuring a General College Chemistry Sequence Using the ACS Anchoring Concepts Content Map
    - Innovative Food Laboratory for a Chemistry of Food and Cooking Course
    - Team-Based Learning for Scientific Computing and Automated Experimentation: Visualization of Colored Reactions
    - Using Image Recognition and Processing Technology to Measure the Gas Volume in a Miniature Water Electrolysis Device Constructed with Simple Materials
    - Invisibility Cloaks and Hot Reactions: Applying Infrared Thermography in the Chemistry Education Laboratory
    - That’s Pretty Cool. Using Work to Freeze Water. The Vapor-Compression Refrigerator and How It Works
    - That’s So Cool. Using a Flame to Freeze Water. The Vapor-Absorption Refrigerator and How It Works
    - Teaching Thermodynamics with the Quantum Volume
    - Using Elementary Calculus and Dimensional Analysis to Prepare Students for Physical Chemistry
    - Reactions: An Innovative and Fun Hybrid Game to Engage the Students Reviewing Organic Reactions in the Classroom
    - Rolling the Dice: Modeling First- and Second-Order Reactions via Collision Theory Simulations in an Undergraduate Laboratory
    - AIRduino: On-Demand Atmospheric Secondary Organic Aerosol Measurements with a Mobile Arduino Multisensor
    - Simple Visual-Aided Automated Titration Using the Python Programming Language
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    - Green Chemistry Coverage in Organic Chemistry Textbooks | Journal of Chemical Education
    - Evaluating Feedstocks, Processes, and Products in the Teaching Laboratory: A Framework for Students To Use Metrics to Design Greener Chemistry Experiments | Journal of Chemical Education
    - Teaching Kinetics and Equilibrium Topics Using Interlocking Building Bricks in Hands-on Activities | Journal of Chemical Education
    - A Homemade Smart Phone Microscope for Single-Particle Fluorescence Microscopy | Journal of Chemical Education
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    - Manipulating Dendritic Growth: An Undergraduate Laboratory Experience with the Interplay between Mass Transport, Supersaturated Solutions, and Dendrite Structure | Journal of Chemical Education
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  - Synthesis and Study of Silver Nanoparticles, Lorraine Mulfinger, Sally D. Solomon, Mozghan Bahadory, Aravindan V. Jeyarajasingam, Susan A. Rutkowsky, Charles Boritz (DOI: 10.1021/ed084p322)
- Editorials
  - Share the Wonder, Deanna M. Cullen (DOI: 10.1021/ed300459v)
  - What We Do and Don't Know about Teaching and Learning Science: The National Research Council Weighs in on Discipline-Based Education Research, Norbert J. Pienta (DOI: 10.1021/ed300354t)
  - Cutting-Edge and Cross-Cutting: Connecting the Dots between Nanotechnology and High School Chemistry, Gregory T. Rushton, Brett A. Criswell (DOI: 10.1021/ed300531k)
- Commentary
  - JCE Classroom Activities Virtual Issue: Celebrating 15 Years with the 15 Greatest Hits, 1997-2012, Erica K. Jacobsen (DOI: 10.1021/ed300347g)

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- Letters
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        - En réponse à l'article Is It Time To Retire the Hybrid Atomic Orbital? de Alexander Grushow
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- Editorials
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    - What Do You Do? I Teach Chemistry!, Gregory T. Rushton
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- Commentaries
    - Hyperconjugation: A More Coherent Approach, Joseph J. Mullins
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- Laboratory Experiments
    - Isolation and Analysis of Essential Oils from Spices, Stephen K. O’Shea, Daniel D. Von Riesen, and Lauren L. Rossi
    - Synthesis of Two Local Anesthetics from Toluene: An Organic Multistep Synthesis in a Project-Oriented Laboratory Course, Patricia Demare and Ignacio Regla
    - Galvanic Cells and the Determination of Equilibrium Constants, Jonathan L. Brosmer and Dennis G. Peters

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- JCE Classroom Activities Virtual Issue: Celebrating 15 Years with the 15 Greatest Hits, 1997–2012, Erica K. Jacobsen
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- 89 Colorful Lather Printing, S. A. S. Hershberger, M. Nance, A. M. Sarquis, L. M. Hogue
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- 106 Sequestration of Divalent Metal Ion by Superabsorbent Polymer in Diapers, C. Yueh-Huey, J.-Y. Lin, L.-P. Lin, H. Liang, J.-F. Yaung
- 67 Flame Tests: Which Ion Causes the Color?, M. J. Sanger
- 107 And the Oscar Goes to...A Chemist!, C. R. Howder, K. D. Groen, T. S. Kuntzleman
- 108 Using Archimedes’ Principle To Explain Floating and Sinking Cans, M. J. Sanger
- 104 A Novel, Simplified Scheme for Plastics Identification, M. E. Harris, B. Walker
- 109 My Acid Can Beat Up Your Acid!, A. Putti
- 73 Colors in Liquid Crystals, G. Lisensky, E. Boatman
- 103 Enjoy a Hot Drink, Thanks to Chemistry!, G. Pinto, M. T. Oliver-Hoyo, J. A. Llorens-Molina
- 93 Aluminum—Air Battery, M. Tamez, J. H. Yu
- 100 How Heavy Is a Balloon? Using the Ideal Gas Law, B. O. Johnson, H. Van Milligan
- 41 Tick Tock, a Vitamin C Clock, S. W. Wright
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Sujet	**Citation**
Clickers in the classroom	MacArthur and Jones (2008)
Teaching chemical equilibrium	Raviolo and Garritz (2009)
Green chemistry	Andraos and Dicks (2012)
Use of dataloggers	Tortosa (2012)
Transfer of learning	Dori and Sasson (2013)
Chemical triplet (Johnstone's triangle)	Taber (2013)
Learning progressions	Sevian and Talanquer (2014)
Teaching thermodynamics	Bain et al. (2014)
Solutions/electrolytes	de Berg (2014)
Hydrogen bonding	Weinhold and Klein (2014)
Education for sustainable development	Burmeister et al. (2012) Juntunen and Aksela (2014)
Quantum chemistry	Greca and Freire (2014)
Graphical representations of orbitals	Barradas-Solas and Sánchez Gómez (2014) Clauss et al. (2014)
Chemical bonding	Dhindsa and Treagust (2014)
Implicit knowledge	Taber (2014)
Distinguishing abstraction and complexity	Blackie (2014)
Organic chemistry	Graulich (2015)
Capturing student reasoning	Sevian et al. (2015)
Flipped learning	Seery (2015)
Chemical kinetics	Bain and Towns (2016)
Learning difficulties leading to misconceptions	Tümay (2016)
Symbolic expressions in chemistry	Liu and Taber (2016)
Pre-laboratory activities	Agustian and Seery (2017)
Reasoning about structure–property relationships	Talanquer (2018)

La revue propose aussi un accès thématique :

- Learning progressions and teaching sequences in chemistry education, 2018
- Celebrating our 2018 prize and award winners, 2018
- Development of key skills and attributes in chemistry, 2017
- The language and the teaching and learning of chemistry, 2016
- Celebrating the 2016 RSC Prize and Award Winners, 2016
- Teaching And Learning About The Interface Between Chemistry And Biology, 2015

- Physical Chemistry Education, 2014
- The Application of Technology to Enhance Chemistry Education, 2013
- Sustainable Development and Green Chemistry in Chemistry Education, 2012
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- Chemistry Teacher Education – Recent Developments, 2009
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- Structural Concepts, Part II, 2002
- Structural Concepts: Contributions from Science, Science Education, History and Philosophy of Science, 2001

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- Volume 21, Issue 1 page 1 to 482
  - Revisiting the use of concept maps in a large enrollment general chemistry course: implementation and assessment
  - Impact of basic arithmetic skills on success in first-semester general chemistry
  - An examination of pre-service chemistry teachers' meaningful understanding and learning difficulties about aromatic compounds using a systemic assessment questions diagram
  - Developing a lesson plan on conventional and green pesticides in chemistry education – a project of participatory action research
  - Epistemological problems underlying pre-service chemistry teachers' aims to use practical work in school science
  - Secondary school students' chemistry self-concepts: gender and culture, and the impact of chemistry self-concept on learning behaviour
  - Secondary school students' acquisition of science capital in the field of chemistry
  - A teacher perspective on Scrum methodology in secondary chemistry education
  - How to promote chemical literacy? On-line question posing and communicating with scientists
  - Students' competence in translating between different types of chemical representations

2019

- Volume 20, Issue 4 page 651 to 936
  - Visualizations and representations in chemistry education - editorial - Resa Kelly and Sevil Akaygun, Chem. Educ. Res. Pract., 2019,20, 657-658 DOI: 10.1039/C9RP90009H
  - Attraction vs. repulsion – learning about forces and energy in chemical bonding with the ELI-Chem simulation Asnat R. Zohar and Sharona T. Levy, Chem. Educ. Res. Pract., 2019,20, 667-684 DOI: 10.1039/C9RP00007K
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    - What you see is what you learn? The role of visual model comprehension for academic success in chemistry Thomas Dickmann, Maria Opfermann, Elmar Dammann, Martin Lang and Stefan Rumann, Chem. Educ. Res. Pract., 2019,20, 804-820 DOI: 10.1039/C9RP00016J
    - Exploring prospective chemistry teachers' perceptions of precipitation, conception of precipitation reactions and visualization of the sub-microscopic level of precipitation reactions Canan Nakiboğlu and Nuri Nakiboğlu, Chem. Educ. Res. Pract., 2019,20, 873-889 DOI: 10.1039/C9RP00109C
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    - Application and testing of a framework for characterizing the quality of scientific reasoning in chemistry students' writing on ocean acidification Alena Moon, Robert Moeller, Anne Ruggles Gere and Ginger V. Shultz, Chem. Educ. Res. Pract., 2019,20, 484-494 DOI: 10.1039/C9RP00005D
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