

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

- ...

2020

- [janvier](#)
 - ...
 - [Problem-Solving Behaviors of Different Achievement Groups on Multiple-Choice Questions in General Chemistry](#)
 - [Dissecting the Flipped Classroom: Using a Randomized Controlled Trial Experiment to Determine When Student Learning Occurs](#)
 - [A Study To Reduce Chemical Waste Generated in Chemistry Teaching Laboratories](#)
 - [Applications of 3D-Printing for Improving Chemistry Education](#)

- [ChemEscape: Educational Battle Box Puzzle Activities for Engaging Outreach and Active Learning in General Chemistry](#)
- [Do-It-Yourself: Creating and Implementing a Periodic Table of the Elements Chemical Escape Room](#)
- [Microplastics Outreach Program: A Systems-Thinking Approach To Teach High School Students about the Chemistry and Impacts of Plastics](#)
- [The Purple Flask: A Novel Reformulation of the Blue Bottle Reaction](#)
- [Stepwise Approach to Hess's Law Using Household Desiccants: A Laboratory Learning Program for High School Chemistry Courses](#)
- [Teaching Electrochemistry with Common Objects: Electrocatalytic Hydrogenation of Acetol with U.S. Coins](#)
- [3D-Printed Microfluidics for Hands-On Undergraduate Laboratory Experiments](#)
- [Quick and Easy Electroless Deposition and Alkanethiol Treatment To Form a Superhydrophobic Surface](#)
- [Basics of Fourier Transform Applied to NMR Spectroscopy: An Interactive Open-Source Web Application](#)

2019

• décembre

- [Can Chemistry Be a Central Science without Systems Thinking?](#) Peter G. Mahaffy, Felix M. Ho, Julie A. Haak, Edward J. Brush, J. Chem. Educ. 2019, 96(12), 2679-2681 DOI: 10.1021/acs.jchemed.9b00991
- [Using a Systems Thinking Approach and a Scratch Computer Program To Improve Students' Understanding of the Brønsted-Lowry Acid-Base Model](#) Sungki Kim, Hee Choi, Seoung-Hey Paik, J. Chem. Educ. 2019, 96(12), 2926-2936 DOI: 10.1021/acs.jchemed.9b00210
- [Phosphate Recovery as a Topic for Practical and Interdisciplinary Chemistry Learning](#) Christian Zowada, Antje Siol, Ozcan Gulacar, Ingo Eilks, J. Chem. Educ. 2019, 96(12), 2952-2958 DOI: 10.1021/acs.jchemed.8b01000
- [Situating Sustainable Development within Secondary Chemistry Education via Systems Thinking: A Depth Study Approach](#) Andrew C. Eaton, Seamus Delaney, Madeleine Schultz, J. Chem. Educ. 2019, 96(12), 2968-2974 DOI: 10.1021/acs.jchemed.9b00266
- [Exploring Real-World Applications of Electrochemistry by Constructing a Rechargeable Lithium-Ion Battery](#) Franklin D. R. Maharaj, Wanxin Wu, Yiwei Zhou, Logan T. Schwanz, Michael P. Marshak, J. Chem. Educ. 2019, 96(12), 3014-3017 DOI: 10.1021/acs.jchemed.9b00328

• novembre

- [Design and Evaluation of Integrated Instructions in Secondary-Level Chemistry Practical Work](#) David J. Paterson, J. Chem. Educ. 2019, 96, 11, 2510-2517, DOI: 10.1021/acs.jchemed.9b00194
- [Connecting Organic Chemistry Concepts with Real-World Contexts by Creating Infographics](#) Devki Kothari, Ariana O. Hall, Carol Ann Castañeda, Anne J. McNeil, J. Chem. Educ. 2019, 96, 11, 2524-2527 DOI: 10.1021/acs.jchemed.9b00605
- [Ion Hunters: Playing a Game To Practice Identifying Anions and Cations and Writing Their Names and Formulas](#) Nisa Yenikalaycı, Dilek Çelikler, Zeynep Aksan, J. Chem. Educ. 2019, 96, 11, 2532-2534, DOI: 10.1021/acs.jchemed.8b00732
- [PyMOL as an Instructional Tool To Represent and Manipulate the Myoglobin/Hemoglobin Protein System](#) Jennifer E. Lineback, Ariane L. Jansma, J. Chem. Educ. 2019, 96, 11,

2540-2544 DOI: 10.1021/acs.jchemed.9b00143

- [Incorporating Chemical Structure Drawing Software throughout the Organic Laboratory Curriculum](#) Noel M. Paul, Ryan J. Yoder, Christopher S. Callam, J. Chem. Educ. 2019, 96, 11, 2638-2642, DOI: 10.1021/acs.jchemed.9b00010
- [Low-Cost Turbidimeter, Colorimeter, and Nephelometer for the Student Laboratory](#) Marin Kovačić, Danijela Ašperger, J. Chem. Educ. 2019, 96, 11, 2649-2654, DOI: 10.1021/acs.jchemed.9b00252
- [Mass-Based Approach to the Determination of the Henry's Law Constant for CO₂\(g\) Using a Diet Carbonated Beverage](#) Frazier Nyasulu, Rebecca Barlag, Lauren McMills, Phyllis Arthasery, J. Chem. Educ. 2019, 96, 11, 2661-2664, DOI: 10.1021/acs.jchemed.9b00082
- **octobre**
 - [Developing Student Process Skills in a General Chemistry Laboratory](#) Gil Reynders, Erica Suh, Renée S. Cole, Rebecca L. Sansom, J. Chem. Educ. 2019, 96(10), 2109-2119 DOI: 10.1021/acs.jchemed.9b00441
 - [Assessing College Students' Risk Perceptions of Hazards in Chemistry Laboratories](#) Clara Rosalía Álvarez-Chávez, Luz S. Marín, Karla Perez-Gamez, Mariona Portell, Luis Velazquez, Francisca Munoz-Osuna, J. Chem. Educ. 2019, 96(10), 2120-2131 DOI: 10.1021/acs.jchemed.8b00891
 - [Influence of Exam Blueprint Distribution on Student Perceptions and Performance in an Inorganic Chemistry Course](#) Karin J. Young, Sarah Lashley, Sarah Murray, J. Chem. Educ. 2019, 96(10), 2141-2148 DOI: 10.1021/acs.jchemed.8b01034
 - [A Complementary Laboratory Exercise: Introducing Molecular Structure-Function Topics to Undergraduate Nursing Health Professions Students](#) Angela L. Mahaffey, J. Chem. Educ. 2019, 96(10), 2188-2193 DOI: 10.1021/acs.jchemed.9b00388
 - [Radioactive World: An Outreach Activity for Nuclear Chemistry](#) Sierra C. Marker, Chilaluck C. Konkankit, Mark C. Walsh, Daniel R. Lorey II, Justin J. Wilson, J. Chem. Educ. 2019, 96(10), 2238-2246 DOI: 10.1021/acs.jchemed.9b00242
 - [Simple and Versatile Protocol for Preparing Self-Healing Poly\(vinyl alcohol\) Hydrogels](#) Rylie K. Morris, Abby P. Hilker, Taylor M. Mattice, Shane M. Donovan, Michael T. Wentzel, Patrick H. Willoughby, J. Chem. Educ. 2019, 96(10), 2247-2252 DOI: 10.1021/acs.jchemed.9b00161
 - [It's All Relative! Engaging Nursing and Exercise Science Students in Chemical Education Using Medical Case Studies](#) Angela L. Mahaffey, J. Chem. Educ., 2019, 96(10), 2253-2260 DOI: 10.1021/acs.jchemed.9b00329
 - [A Convenient, Effective, and Safer Flame Demonstration](#) John P. Canal, Rajendra Dev Sharma, Hamel N. Tailor, J. Chem. Educ. 2019, 96(10), 2261-2265 DOI: 10.1021/acs.jchemed.8b01010
 - [Hands-On Experiment To Verify Consistency from Bulk Density to Atomic and Ionic Radii with Lumps of Metals and Ionic Compounds](#) Seong Kyun Kim, Seoung-Hey Paik, J. Chem. Educ. 2019, 96(10), 2271-2278 DOI: 10.1021/acs.jchemed.8b00963
 - [Design and Construction of a Low-Cost Arduino-Based pH Sensor for the Visually Impaired Using Universal pH Paper](#) Abubaker Qutieshat, Rayhana Aoudidi, Rayan Arfaoui, J. Chem. Educ. 2019, 96(10), 2333-2338 DOI: 10.1021/acs.jchemed.9b00450
- **septembre**
 - [Development of the Enthalpy and Entropy in Dissolution and Precipitation Inventory](#) Timothy N. Abell, Stacey Lowery Bretz, J. Chem. Educ. 2019, 96(9), 1804-1812, DOI: 10.1021/acs.jchemed.9b00186
 - [Drawing for Assessing Learning Outcomes in Chemistry](#) Stephanie A. C. Ryan, Mike Stieff, J. Chem. Educ. 2019, 96(9), 1813-1820 DOI: 10.1021/acs.jchemed.9b00361
 - [Investigating Student Understanding of London Dispersion Forces: A Longitudinal Study](#) Keenan Noyes, Melanie M. Cooper, J. Chem. Educ. 2019, 96(9), 1821-1832 DOI:

10.1021/acs.jchemed.9b00455

- [Michaelis–Menten Graphs, Lineweaver–Burk Plots, and Reaction Schemes: Investigating Introductory Biochemistry Students’ Conceptions of Representations in Enzyme Kinetics](#) Jon-Marc G. Rodriguez, Nicholas P. Hux, Sven J. Philips, Marcy H. Towns, J. Chem. Educ. 2019, 96(9), 1833-1845 DOI: 10.1021/acs.jchemed.9b00396
- [Organic Chemistry, Life, the Universe and Everything \(OCLUE\): A Transformed Organic Chemistry Curriculum](#) Melanie M. Cooper, Ryan L. Stowe, Olivia M. Crandell, Michael W. Klymkowsky, J. Chem. Educ. 2019, 96(9), 1858-1872 DOI: 10.1021/acs.jchemed.9b00401
- [Introducing Students to Fundamental Chemistry Concepts and Basic Research through a Chemistry of Fashion Course for Nonscience Majors](#) Karen A. Tallman, J. Chem. Educ. 2019, 96(9), 1906-1913 DOI: 10.1021/acs.jchemed.8b00826
- [Rumford’s Experimental Challenge to Caloric Theory: “Big Science” 18th-Century Style with Important Results for Chemistry and Physics](#) Frederic E. Schubert, J. Chem. Educ. 2019, 96(9), 1955-1960 DOI: 10.1021/acs.jchemed.9b00039
- [Chemical Exploration with Virtual Reality in Organic Teaching Laboratories](#) Jonathon B. Ferrell, Joseph P. Campbell, Dillon R. McCarthy, Kyle T. McKay, Magenta Hensinger, Ramya Srinivasan, Xiaochuan Zhao, Alexander Wurthmann, Jianing Li, Severin T. Schneebeil, J. Chem. Educ. 2019, 96(9), 1961-1966 DOI: 10.1021/acs.jchemed.9b00036
- [Custom-Printed 3D Models for Teaching Molecular Symmetry](#) Brian K. Niece, J. Chem. Educ. 2019, 96(9), 2059-2062 DOI: 10.1021/acs.jchemed.9b00053
- **Août**
 - [Metacognitive Training in Chemistry Tutor Sessions Increases First Year Students’ Self-Efficacy](#) Kate J. Graham, Catherine M. Bohn-Gettler, Annette F. Raigoza, J. Chem. Educ. 2019, 96(8), 1539-1547 DOI: 10.1021/acs.jchemed.9b00170
 - [Investigating Student Understanding of Rate Constants: When is a Constant “Constant”?](#) Kinsey Bain, Jon-Marc G. Rodriguez, Marcy H. Towns, J. Chem. Educ. 2019, 96(8), 1571-1577 DOI: 10.1021/acs.jchemed.9b00005
 - [Polymers, Giant Molecules with Properties: An Entertaining Activity Introducing Polymers to Young Students](#) Nejla B. Erdal, Minna Hakkarainen, Anders G. Blomqvist, J. Chem. Educ. 2019, 96(8), 1691-1695 DOI: 10.1021/acs.jchemed.8b00918
 - [Polymer Processing Demonstrations Using PET Bottles](#) Alfredo Luis M. L. Mateus, J. Chem. Educ. 2019, 96(8), 1696-1700 DOI: 10.1021/acs.jchemed.8b00890
 - [An Acid-Base Battery with Oxygen Electrodes: A Laboratory Demonstration of Electrochemical Power Sources](#) Guo-Ming Weng, Chi-Ying Vanessa Li, Kwong-Yu Chan, J. Chem. Educ. 2019, 96(8), 1701-1706, DOI: 10.1021/acs.jchemed.8b00901
 - [Implementation of an Accessible Gas Chromatography Laboratory Experiment for High School Students](#) Gannon P. Connor, Daniel Kim, Alexandra L. Nagelski, Emily O. Schmidt, Tori Hass-Mitchell, John T. Atwater, Sara A. Tridenti, Seungjung Sohn, Patrick L. Holland, J. Chem. Educ. 2019, 96(8), 1707-1713 DOI: 10.1021/acs.jchemed.8b00789
 - [Bringing Nuance to Automated Exam and Classroom Response System Grading: A Tool for Rapid, Flexible, and Scalable Partial-Credit Scoring](#) Tom P. Carberry, Philip S. Lukeman, Dustin J. Covell, J. Chem. Educ. 2019, 96(8), 1767-1772 DOI: 10.1021/acs.jchemed.8b01004
 - [Simple and Economical Procedure To Assemble pH Glass Membrane Electrodes Used in Chemical Education](#) Fang Yong, Qihong Zhu, Guohao Zhang, Guohong Tao, Song Qin, J. Chem. Educ. 2019, 96(8), 1773-1777 DOI: 10.1021/acs.jchemed.9b00254
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 - [Improving Learning Outcomes in Secondary Chemistry with Visualization-Supported Inquiry Activities](#) Mike Stieff, J. Chem. Educ. 2019, 96 (7), pp 1300-1307 DOI: 10.1021/acs.jchemed.9b00205

- [Applying the Next Generation Science Standards to Current Chemistry Classrooms: How Lessons Measure Up and How to Respond](#) Natalia M. Kellamis, Ellen J. Yezierski, J. Chem. Educ., 2019, 96 (7), pp 1308-1317 DOI: 10.1021/acs.jchemed.8b00840
- [The Impact of Core-Idea Centered Instruction on High School Students' Understanding of Structure-Property Relationships](#) Ryan L. Stowe, Deborah G. Herrington, Robert L. McKay, Melanie M. Cooper, J. Chem. Educ., 2019, 96 (7), pp 1327-1340 DOI: 10.1021/acs.jchemed.9b00111
- [Reconstructing a School Chemistry Curriculum in the Era of Core Competencies: A Case from China](#) Bing Wei, J. Chem. Educ., 2019, 96 (7), pp 1359-1366 DOI: 10.1021/acs.jchemed.9b00211
- [Periodic Universe: A Teaching Model for Understanding the Periodic Table of the Elements](#) Matthias Bierenstiel, Kathy Snow, J. Chem. Educ., 2019, 96 (7), pp 1367-1376 DOI: 10.1021/acs.jchemed.8b00740
- [Making Science Accessible to Students with Visual Impairments: Insulation-Materials Investigation](#) Aydin Kizilaslan, Mustafa Sozbilir, Seraceddin Levent Zorluoglu, J. Chem. Educ., 2019, 96 (7), pp 1383-1388 DOI: 10.1021/acs.jchemed.8b00772
- [Systematic Procedure for Drawing Lewis Structures Based on Electron Pairing Priority and the Explicit Use of Donor Bonds: An Alternative to the Normal Procedure Which Can Be Pen and Paper Based or Automated on a PC in User Interactive 3D](#) Patrick McArdle, J. Chem. Educ., 2019, 96 (7), pp 1412-1417 DOI: 10.1021/acs.jchemed.8b00868
- [Chemistry Toy 1: An Approach to Quantify and Improve the Power of Scientific Observation](#) Matthew F. Terra, Shaun D. Black, J. Chem. Educ., 2019, 96 (7), pp 1431-1437 DOI: 10.1021/acs.jchemed.8b00480
- [Scrambled Eggs or How Eggshells Become Phosphates](#) Diana Potes Vecini, Shirley C. Jofré, Florencia B. Pereyra Ríos, Javier Sartuqui, Paula Messina, M. Belén González, Melisa Saugo, Lorena Meier, Mónica F. Díaz, Andrés E. Ciolino, J. Chem. Educ., 2019, 96 (7), pp 1443-1448 DOI: 10.1021/acs.jchemed.8b00451
- [Rethinking a Timeless Titration Experimental Setup through Automation and Open-Source Robotic Technology: Making Titration Accessible for Students of All Abilities](#) Ronald Soong, Kyle Agmata Tina Doyle, Amy Jenne, Antonio Adamo, Andre J. Simpson, J. Chem. Educ., 2019, 96 (7), pp 1497-1501 DOI: 10.1021/acs.jchemed.9b00025
- [Simple Glowmatography: Chromatographic Separation of Glow-Stick Dyes Using Chalk](#) Thomas S. Kuntzleman, Kasey R. Bunker, Ashlee A. Bartlett, J. Chem. Educ., 2019, 96 (7), pp 1506-1509 DOI: 10.1021/acs.jchemed.8b00237
- [Jigsaw: Using Cooperative Learning in Teaching Organic Functions](#) Brenno R. M. Oliveira, André L. Vailati, Edinara Luiz, Fabrine G. Böll, Samuel R. Mendes, J. Chem. Educ., 2019, 96 (7), pp 1515-1518 DOI: 10.1021/acs.jchemed.8b00765
- [Quantitative Analysis Using a Flatbed Scanner: Aspirin Quantification in Pharmaceutical Tablets](#) Rodrigo Sens da Silva, Endler Marcel Borges, J. Chem. Educ., 2019, 96 (7), pp 1519-1526 DOI: 10.1021/acs.jchemed.8b00620
- [A 3D-Printable Dual Beam Spectrophotometer with Multiplatform Smartphone Adaptor](#) Ryan Bogucki, Mary Greggila, Paul Mallory, Jiansheng Feng, Kelly Siman, Banafsheh Khakipoor, Hunter King, Adam W. Smith, J. Chem. Educ., 2019, 96 (7), pp 1527-1531 DOI: 10.1021/acs.jchemed.8b00870
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 - [Introductory Chemistry Using the "Flipped" Environment: An Update](#) Norbert J. Pienta, J. Chem. Educ., 2019, 96 (6), pp 1053-1054 DOI: 10.1021/acs.jchemed.9b00458
 - [The Evaluation of a Hybrid, General Chemistry Laboratory Curriculum: Impact on Students' Cognitive, Affective, and Psychomotor Learning](#) Kory M. Enneking, Graham R. Breitenstein, Amelia F. Coleman, James H. Reeves, Yishi Wang, Nathaniel P. Grove, J. Chem. Educ., 2019, 96 (6), pp 1058-1067 DOI: 10.1021/acs.jchemed.8b00637

- [Simplified Low-Cost Colorimetry for Education and Public Engagement](#) J. O'Donoghue, J. Chem. Educ., 2019, 96 (6), pp 1136-1142 DOI: 10.1021/acs.jchemed.9b00301
- [Accurate, Photoresistor-Based, Student-Built Photometer and Its Application to the Forensic Analysis of Dyes](#) Anna L. Adams-McNichol, Rayf C. Shiell, David A. Ellis, J. Chem. Educ., 2019, 96 (6), pp 1143-1151 DOI: 10.1021/acs.jchemed.8b00862
- [Electrochemistry with Simple Materials to Create Designs and Write Messages](#) Thomas S. Kuntzleman, J. Chem. Educ., 2019, 96 (6), pp 1178-1181 DOI: 10.1021/acs.jchemed.9b00012
- [STEM Activities in Determining Stoichiometric Mole Ratios for Secondary-School Chemistry Teaching](#) Patcharee Chonkaew, Boonnak Sukhummek, Chatree Faikhamta, J. Chem. Educ., 2019, 96 (6), pp 1182-1186 DOI: 10.1021/acs.jchemed.8b00985
- [BYOL: Bring Your Own Lime Hands-On Laboratory Experience](#) Mikhail Kurushkin, Chantal Tracey, Maria Mikhaylenko, J. Chem. Educ., 2019, 96 (6), pp 1283-1286 DOI: 10.1021/acs.jchemed.8b00966
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 - [Visualizing Dissolution, Ion Mobility, and Precipitation through a Low-Cost, Rapid-Reaction Activity Introducing Microscale Precipitation Chemistry](#) Bob Worley, Eric M. Villa, Jess M. Gunn, and Bruce Mattson, J. Chem. Educ., 2019, 96 (5), pp 951-954 DOI: 10.1021/acs.jchemed.8b00563
 - [A Lab-Based Chemical Escape Room: Educational, Mobile, and Fun!](#) Ran Peleg, Malka Yayon, Dvora Katchevich, Mor Moria-Shipony, and Ron Blonder, J. Chem. Educ., 2019, 96 (5), pp 955-960 DOI: 10.1021/acs.jchemed.8b00406
 - [Development and Production of Interactive Videos for Teaching Chemical Techniques during Laboratory Sessions](#) Sarah L. Cresswell, Wendy A. Loughlin, Mark J. Coster, and David M. Green, J. Chem. Educ., 2019, 96 (5), pp 1033-1036 DOI: 10.1021/acs.jchemed.8b00647
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 - [What Chemistry Teachers Should Know about the Revised International System of Units \(Système International\)](#) Carmen J. Giunta, J. Chem. Educ., 2019, 96 (4), pp 613-617 DOI: 10.1021/acs.jchemed.8b00707
 - [Introduction to Laboratory Safety for Graduate Students: An Active-Learning Endeavor](#) David J. Hill, Olivia F. Williams, Danianne P. Mizzy, Therese F. Triumph, Catherine R. Brennan, Dawn C. Mason, and David S. Lawrence, J. Chem. Educ., 2019, 96 (4), pp 652-659 DOI: 10.1021/acs.jchemed.8b00774
 - [Addressing Misconceptions Related to Mass-Matter Conservation and Bond Energetics with a Modified Gauss Accelerator](#) Robert G. Gullion, Terry Gullion, Michelle Richards-Babb, and Mark Schraf, J. Chem. Educ., 2019, 96 (4), pp 734-738 DOI: 10.1021/acs.jchemed.8b00697
 - [KinSim: A Research-Grade, User-Friendly, Visual Kinetics Simulator for Chemical-Kinetics and Environmental-Chemistry Teaching](#) Zhe Peng and Jose L. Jimenez, J. Chem. Educ., 2019, 96 (4), pp 806-811 DOI: 10.1021/acs.jchemed.9b00033
 - [Clock Reaction Revisited: Catalyzed Redox Substrate-Depletive Reactions](#) Taweetham Limpanuparb, Chattarin Ruchawapol, and Dulyarat Sathainthammanee, J. Chem. Educ., 2019, 96 (4), pp 812-818 DOI: 10.1021/acs.jchemed.8b00547
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 - [Supporting the Growth and Impact of the Chemistry-Education-Research Community](#) Deborah G. Herrington, Ryan D. Sweeder, Patrick L. Daubenmire, Christopher F. Bauer, Stacey Lowery Bretz, Diane M. Bunce, Justin H. Carmel, Renée Cole, Brittland K. DeKorver, Resa M. Kelly, Scott E. Lewis, Maria Oliver-Hoyo, Stephanie A. C. Ryan, Marilynne Stains, Marcy H. Towns, and Ellen J. Yezierski J. Chem. Educ., 2019, 96 (3), pp 393-397 ASAP DOI:

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- [Undergraduate Chemistry Students' Conceptualization of Models in General Chemistry](#) Katherine Lazenby, Charlie A. Rupp, Alexandra Brandriet, Kathryn Mauger-Sonnek, and Nicole M. Becker, J. Chem. Educ., 2019, 96 (3), pp 455–468 DOI: 10.1021/acs.jchemed.8b00813
 - [Macroscopic Observations of Dissolving, Insolubility, and Precipitation: General Chemistry and Physical Chemistry Students' Ideas about Entropy Changes and Spontaneity](#) Timothy N. Abell and Stacey Lowery Bretz, J. Chem. Educ., 2019, 96 (3), pp 469–478 DOI: 10.1021/acs.jchemed.8b01007
 - [Is this Solution Pink Enough? A Smartphone Tutor to Resolve the Eternal Question in Phenolphthalein-Based Titration](#) Balraj B. Rathod, Sahana Murthy, and Subhajit Bandyopadhyay, J. Chem. Educ., 2019, 96 (3), pp 486–494 DOI: 10.1021/acs.jchemed.8b00708
 - [Introducing Electron Probability Density to High School Students Using a Spiral Drawing Toy](#) Mikhail Kurushkin and Chantal Tracey, J. Chem. Educ., 2019, 96 (3), pp 500–502 DOI: 10.1021/acs.jchemed.8b00391
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- [Evidence for the Importance of Laboratory Courses](#), editorial : Stacey Lowery Bretz, J. Chem. Educ., 2019, 96 (2), pp 193–195 DOI: 10.1021/acs.jchemed.8b00874
 - [Characterizing Peer Review Comments and Revision from a Writing-to-Learn Assignment Focused on Lewis Structures](#) S. A. Finkenstaedt-Quinn, E. P. Snyder-White, M. C. Connor, A. Ruggles Gere, and G. V. Shultz, J. Chem. Educ., 2019, 96 (2), pp 227–237 DOI: 10.1021/acs.jchemed.8b00711
 - [Form versus Function: A Comparison of Lewis Structure Drawing Tools and the Extraneous Cognitive Load They Induce](#) Patrick L. Duffy, Kory M. Enneking, Tyler W. Gampp, Khatijah Amir Hakim, Amelia F. Coleman, Krista V. Laforest, Dylan M. Paulson, Erik T. Paulson, Justin D. Shepard, Jessica M. Tiettmeyer†, Kristina M. Mazzaronell, and Nathaniel P. Grove, J. Chem. Educ., 2019, 96 (2), pp 238–247 DOI: 10.1021/acs.jchemed.8b00574
 - [Escape Classroom: Can You Solve a Crime Using the Analytical Process?](#) Marta Ferreira-González, Antonio Amores-Arrocha, Estrella Espada-Bellido, María José Aliaño-Gonzalez, Mercedes Vázquez-Espinosa, Ana V. González-de-Peredo, Pau Sancho-Galán, José Ángel Álvarez-Saura, Gerardo F. Barbero , and Cristina Cejudo-Bastante, J. Chem. Educ., 2019, 96 (2), pp 267–273 DOI: 10.1021/acs.jchemed.8b00601
 - [Exploring Acid-Base Chemistry by Making and Monitoring Red-Cabbage Sauerkraut: A Fresh Twist on the Classic Cabbage-Indicator Experiment](#), Jacqueline L. Linder, Sumeja Aljic, Hamzah M. Shroof, Zachary B. Di Giusto, James M. Franklin, Shane Keaney, Christopher P. Le, Olivia K. George, Andrew M. Castaneda, Lloyd S. Fisher, Virginia A. Young, and Adam M. Kiefer, J. Chem. Educ., 2019, 96 (2), pp 304–307 DOI: 10.1021/acs.jchemed.8b00767
 - [Applying Chemistry Knowledge to Code, Construct, and Demonstrate an Arduino-Carbon Dioxide Fountain](#) Seong-Joo Kang , Hye-Won Yeo, and Jihyun Yoon, J. Chem. Educ., 2019, 96 (2), pp 313–316 DOI: 10.1021/acs.jchemed.8b00663
 - [Multidisciplinary Learning: Redox Chemistry and Pigment History](#) Marcie B. Wiggins, Emma Heath, and Jocelyn Alcántara-García, J. Chem. Educ., 2019, 96 (2), pp 317–322 DOI: 10.1021/acs.jchemed.8b00358
 - [Detecting Microplastics in Soil and Sediment in an Undergraduate Environmental Chemistry Laboratory Experiment That Promotes Skill Building and Encourages Environmental Awareness](#) Laura Rowe, Maria Kubalewski, Robert Clark, Emily Statza, Thomas Goynes, Katie Leach, and Julie Peller, J. Chem. Educ., 2019, 96 (2), pp 323–328 DOI: 10.1021/acs.jchemed.8b00392
 - [Listening to pH](#) Samuel C. Costa and Julio C. B. Fernandes, J. Chem. Educ., 2019, 96 (2),

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- [Measuring CO2 with an Arduino: Creating a Low-Cost, Pocket-Sized Device with Flexible Applications That Yields Benefits for Students and Schools](#) Hernan Pino, Vanesa Pastor, Carme Grimalt-Álvaro, and Víctor López, J. Chem. Educ., 2019, 96 (2), pp 377–381 DOI: 10.1021/acs.jchemed.8b00473
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 - [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)

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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)

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- Learning progressions and teaching sequences in chemistry education, 2018
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 - [Impact of basic arithmetic skills on success in first-semester general chemistry](#)
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 - [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](#)
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