

Sélection d'articles en didactique de la chimie

**Fix Me!**

à ajouter :

- <https://dvillers.umons.ac.be/wiki/teaching:biblio-10.1021-ed2001957>

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](#)
- [Introducing the Virtual Issue: George M. Bodner Festschrift Marcy Towns, 2021](#) → [sélection](#)

[d'articles](#) sur :

- Constructivism as a Lens for Understanding Student Learning
- Student Conceptualization of Organic Reactions
- Understanding Student Approaches to Problem Solving
- Visualization and Spatial Reasoning Skills in Chemistry Education
- Conceptual Understanding of Chemistry

Cf. aussi le lien [virtual collections](#).

2024

- [Journal of Chemical Education Vol. 101 No. 9 - ACS Publications](#)
 - [Students Who Perceive Instructors to Have a Fixed Mindset Report a Greater Sense of Academic Misfit That Leads to Lower Chemistry Grades](#)
 - [Spatial Visualization of Chemical Reactions in a Hydrogel](#)
 - [Exploring High School Students' Chemical Explanatory Levels of Thin-Layer Chromatography through Reflective Inquiry](#)
- [Journal of Chemical Education Vol. 101 No. 8 - ACS Publications](#)
 - [Can You Make it Back to Earth? A Digital Educational Escape Room for Secondary Chemistry Education to Explore Selected Principles of Green Chemistry](#)
 - [Identifying Generative Artificial Intelligence Chatbot Use on Multiple-Choice, General Chemistry Exams Using Rasch Analysis](#)
 - [Revisiting a Teaching Sequence on the Topic of Electrolysis: A Comparative Study with the Use of Artificial Intelligence](#)
 - [Exploring the Concept of Valence and the Nature of Science via Generative Artificial Intelligence and General Chemistry Textbooks](#)
 - [Effectiveness of Inquiry-Based Chemistry Learning on Students' Attitudes and Knowledge of Climate Change Mitigation Behaviors](#)
 - [Student Perceptions of Artificial Intelligence Utility in the Introductory Chemistry Classroom](#)
- [Journal of Chemical Education Vol. 101 No. 7 - ACS Publications](#)
 - [Revisiting Chemophobia through a Social Justice Lens](#)
 - [Kitchen Chemistry Boosts STEM Identity and Increases STEM Career Interests](#)
 - [An Interdisciplinary Practical Project for Preservice Science Teachers: Visualizing Climate Change Based on Systems Thinking](#)
 - [Multimodal Generative Artificial Intelligence Tackles Visual Problems in Chemistry](#)
 - [Integrating Green Chemistry and Sustainability Principles to a Secondary Science Curriculum: A Mixed-Methods Needs Assessment](#)
 - [Pressure's On: Exploring the Course of Chemical Reactions with ARDUINO and GeoGebra in a Hands-On Science Approach](#)
 - [Reprocessable Networks from Vegetable Oils, Salts, and Food Acids: A Green Polymer Outreach Demonstration for Middle School Students](#)
- [Journal of Chemical Education Vol. 101 No. 6 - ACS Publications](#)
 - [Chemistry in Everyday Life: A Context-Based Course for High School Students Incorporating Household Application Topics with Explanatory Writing Assignments](#)
 - [Modeling Using Multiple Connected Representations: An Approach to Solving Problems in Chemical Education](#)
 - [Vikings: An Online Cooperative Game for Reviewing Thermochemistry, Chemical Equilibrium, and Chemical Kinetics](#)

- Journal of Chemical Education Vol. 101 No. 5 - ACS Publications
 - An Educational Framework for Teaching Chemistry Using a Systems Thinking Approach
 - Space Race Game: A Web-Based Board Game for Aiding Students in Reviewing Thermochemistry, Chemical Equilibrium, and Chemical Kinetics
 - An Analysis of the Changes in the Representation of Scientific Methods in Laboratory Work in Chinese Senior High School Chemistry Textbooks
 - Using ChatGPT to Support Lesson Planning for the Historical Experiments of Thomson, Millikan, and Rutherford
 - On-the-Go Lab for Aqueous Reactions Demonstrations: Activities at the Microscale
- Journal of Chemical Education Vol. 101 No. 4 - ACS Publications
 - Generating an Evidence-Based Guide to Scaffolding Sodium Chloride Dissolution Using the VisChem Approach
 - Identification of High-School Students' Conceptual Challenges Related to Alcohols and Carbonyl Compounds by Means of a Four-Tier Diagnostic Test
 - Molecules in Medicine: A Week-Long Multidisciplinary Summer Camp for High School Students **intérêt pharmaceutique**
 - Learning Mole Calculation through a Board Game in an Engaging and Enjoyable Environment: Design, Implementation, and Evaluation
 - Identifications: A Battle Card Game to Learn Chemical Tests and Practice Observation and Reasoning
 - Developing a Stop-Motion Animation in Improving Junior Secondary Students' Learning in Chemistry Lab: An Exploratory Study
 - GamesBond: A Game-based Supplemental Teaching Material for Ionic and Covalent Bonding
 - Teaching Design, Arts, and Fashion Students about Plastics and Recycling: The Use of Online and Offline Escape Room Scenarios
 - Effect of Science Outreach Activities on Chemophobic Conceptions at the High School Level
 - A New Design of the Air-Aluminum Battery, Optimized for STEM Activities
- Journal of Chemical Education Vol. 101 No. 3 - ACS Publications
 - Applying the VisChem Approach in High School Classrooms: Chemical Learning Outcomes and Limitations
 - Discontinuity in the Teaching of Lewis Representation between Secondary and Higher Education
 - Teaching with Augmented Reality Using Tablets, Both as a Tool and an Object of Learning
 - Prelaboratory Practice with a Titration Simulation Program for Carbonate Mixtures
 - Development and Evaluation of a Marker Arrangement-Based Mobile Augmented Reality Application for Learning Covalent and Ionic Bonding in the High School Curriculum
 - Enhancing Chemistry Education for Students through a Novel Card Game: Compound Chain
 - Teaching Acid-Base Fundamentals and Introducing pH Using Butterfly Pea Flower Tea
- Journal of Chemical Education Vol. 101 No. 2 - ACS Publications
 - Mapping Pre-Service Chemistry Teachers' Group Cognitive Structure Concerning the Topic of Physical and Chemical Change via the Word Association Method
 - Project: Lockbox—A Reusable Escape-Room-Style Activity for the Classroom
 - A Hands-On Approach to Understanding Electrochemistry for Middle and High School Students
- Journal of Chemical Education Vol. 101 No. 1 - ACS Publications
 - Improving the Understanding of Chemistry by Using the Right Words: Why Is Talking about Compounds so Messy?
 - A Polymer Degradation and Remanufacturing Experiment in the High School Classroom

- [Density Functional Calculations on H2 Using 1s Slater Type Orbitals](#)

2023

- [Journal of Chemical Education | Vol 100, No 11](#)
 - [How Effective are Indicators for Individuals with Color Vision Deficiency? | Journal of Chemical Education](#)
- [Journal of Chemical Education - Vol 100, No 10](#)
 - [Working Together: Chemical Safety and Education](#)
 - [ChatGPT Needs a Chemistry Tutor Too](#)
 - [Systems Thinking in Chemistry and Chemical Education: A Framework for Meaningful Conceptual Learning and Competence in Chemistry](#)
 - [Introductory Organic Chemistry \(First-Semester\) for Blind and Visually Impaired Students: Practical Lessons and Experiences](#)
 - [Lighting Up for Learning—Fluorescence Analysis of Microplastic Particles by Secondary School Students Using Nile Red](#)
 - [Quantifying the Dynamics of the Candy Cola Soda Geysers Using a Simple and Inexpensive Protocol](#)
- [Journal of Chemical Education - Vol 100, No 9](#)
 - [Statistical Analysis in a Longitudinal Study of the Implementation of Process Oriented Guided Inquiry Learning at Norwich University](#)
 - [Development and Use of Flowchart for Preservice Chemistry Teachers' Problem Solving on the First Law of Thermodynamics](#)
 - [Development, Implementation, and Evaluation of a Pre-service Chemistry Teacher Preparation Unit on Fostering Pedagogical Scientific Language Knowledge](#)
 - [Introduction of Formative Assessment Classroom Techniques \(FACTs\) to School Chemistry Teaching: Teachers' Attitudes, Beliefs, and Experiences](#)
 - [A Modern Twist on an Old Measurement: Using Laboratory Automation and Data Science to Determine the Solubility Product of Lead Iodide](#)
 - [The Effectiveness of the Competence Approach in the Training of Chemistry Teachers](#)
 - [Experiences with Student Projects Focusing on Chemistry Shows in Undergraduate Chemistry Teacher Education](#)
 - [Eutectics in Pharmacy Curriculum: A Simple Demonstration with Pharmaceutical Relevance](#)
 - [Mobile App to Quantify pH Strips and Monitor Titrations: Smartphone-Aided Chemical Education and Classroom Demonstrations](#)
- [Journal of Chemical Education - Vol 100, No 8](#)
 - [More than Marshmallows: Implementation and Assessment of an Interactive In-Class Activity for Learning VSEPR Theory](#)
 - [A Review of Research on the Quality and Use of Chemistry Textbooks](#)
 - [Design and Conduct of Lab@Home Chemistry Experiment: The Effect of Strong Acid and Base on Buffered and Unbuffered Systems](#)
 - [Quantitative Assessment on the Effectiveness of a Formal Charge Method for Constructing Lewis \(Electron Dot\) Structures](#)
 - ["Atomizados": An Educational Game for Learning Atomic Structure. A Case Study with Grade-9 Students with Difficulties Learning Chemistry](#)
- [Journal of Chemical Education - Vol 100, No 7](#)
 - [Epistemological Lessons from Inconsistencies in Teachers' Errors Related to Use of the Mole Ratio in Stoichiometry Calculations: A Cue for Professional Development](#)

- Journal of Chemical Education - Vol 100, No 6
 - Experiences with Flipped Classroom Methodology in US High School Chemistry Courses: Lessons Learned from Action Research Projects
 - ChemVLab+: Integrating Next Generation Science Standards Practices with Chemistry
 - Development of an Inexpensive, Rapid Method to Measure Nitrates in Freshwater to Enhance Student Learning
 - Solving Redox Reactions: The Advantages of the Thermodynamic Method
 - Green Chemistry Teacher Professional Development in New York State High Schools: A Model for Advancing Green Chemistry
 - Investigating Preservice Chemistry Teachers' Understanding and Views about the Diversity of Scientific Methods
 - Exploring Science Literature: Integrating Chemistry Research with Chemical Education
 - Dissolution of Calcium Hydroxide in Water: A Guided Inquiry in University and High School Chemistry Laboratories
 - Chemistry and Chaos: A Role-Playing Game for Teaching Chemistry
 - Introducing Pharmaceuticals to Middle School Students using with Hypothesis-Driven, At-Home Activities **intérêt pharmaceutique**
- Journal of Chemical Education - Vol 100, No 5
 - Chemistry Education Research at a Crossroads: Where Do We Need to Go Now?
 - Effective Pedagogical Approaches Used in High School Chemistry Education: A Systematic Review and Meta-Analysis
 - Investigating the Use of an Artificial Intelligence Chatbot with General Chemistry Exam Questions
- Journal of Chemical Education - Vol 100, No 4
 - Was This Title Generated by ChatGPT? Considerations for Artificial Intelligence Text-Generation Software Programs for Chemists and Chemistry Educators
 - Potential ChatGPT Use in Undergraduate Chemistry Laboratories
 - An Experimental Approach with a Twist: Helping High School Students to Understand the Concept of Limiting Reactant
 - Features of Immersive Virtual Reality to Support Meaningful Chemistry Education
 - Alcohol or Ethanol? Teaching Organic Chemistry Nomenclature in an Informal Environment
- Journal of Chemical Education - Vol 100, No 3
 - Proposal for a Didactic Tool on Teaching Practices Related to the Selective Sorting of Plastic Waste According to Relative Density in High Schools: Case Study in Burkina Faso
 - Computer-Aided Drug Design Project for Introductory High School Students **intérêt pharmaceutique**
 - Interlocking Toy Bricks Help Nursing Students "Handle" Valence Electrons, Molarity, Solubility, and More!
 - Chem'Sc@pe: an Organic Chemistry Learning Digital Escape Game
 - A Simple and Inexpensive Invisible Ink System Based on Red Cabbage Extracts
- Journal of Chemical Education - Vol 100, No 2
 - A Low-Cost Dual-Beam Smartphone Visible Spectrometer
 - A Simple At-Home Titration: Quantifying Citric Acid in Lemon Juice with Baking Soda and Mentos
 - An Alternative Experimental Procedure to Determine the Solubility of Potassium Nitrate in Water with Automatic Data Acquisition Using Arduino for Secondary School: Development and Validation with Pre-Service Chemistry Teachers
 - Step by Step to Make Augmented Reality Filters for Molecular Models
 - BasePairPuzzle: Molecular Models for Manipulating the Concept of Hydrogen Bonds and Base Pairs in Nucleic Acids

- [Periodic Table of Ladder: A Board Game to Study the Characteristics of Group 1, Group 17, Group 18, and the Transition Elements](#)
- [Will It Rust? A Set of Simple Demonstrations Illustrating Iron Corrosion Prevention Strategies at Sea](#)
- [Journal of Chemical Education | Vol 100, No 1](#)
 - [Didactic Reasoning about Using Chemicals in Teaching Upper Secondary Chemistry](#)
 - [Educational Metal-Air Battery](#)
 - [An Experiment of Chemistry with Historical Context: 18th-Century Potash Production in Brazil](#)
 - [ChemEscape: Redox and Thermodynamics—Puzzling Out Key Concepts in General Chemistry](#)

2022

- [Journal of Chemical Education | Vol 99, No 12](#)
 - [Inquiry-Based Laboratories for Students to Investigate the Concepts of Acid-Base Titration, pKa, Equivalence Points, and Molar Absorption Coefficients](#)
 - [Encouraging Student Engagement by Using a POGIL Framework for a Gas-Phase IR Physical Chemistry Laboratory Experiment](#)
 - [The Hydrogen Atom Spectrum: Experimental Analysis Using Iterative Model Building](#)
- [Journal of Chemical Education | Vol 99, No 11](#)
 - [Newly Designed Laboratory Course for Preservice Chemistry Teachers: Do the Students Rate Their Practical Skills As Relevant for Their Future Profession?](#)
 - [Introducing the Role of Metals in Biology to High School Students](#)
 - [Organic Connections: A Chemical Jigsaw Puzzle for Learning Structural Formulas](#)
- [Journal of Chemical Education | Vol 99, No 10](#)
 - [How Can Socio-scientific Issues Help Develop Critical Thinking in Chemistry Education? A Reflection on the Problem of Plastics](#)
 - [“MasterChemist”: A Novel Strategy for Reviewing Stoichiometry and Introducing Molecular Gastronomy to Chemistry Students](#)
 - [“The Masked Scientist”: Designing a Virtual Chemical Escape Room | Journal of Chemical Education](#)
 - [A Simple Chemical Oscillator: The “Educator”](#)
 - [A Low-Cost and Simple Demonstration of Freezing Point Depression and Colligative Properties with Common Salts and Ice Cream](#)
 - [Electrochromic Device Demonstrator from Household Materials](#)
 - [Using Jupyter Tools to Design an Interactive Textbook to Guide Undergraduate Research in Materials Informatics](#)
- [Journal of Chemical Education | Vol 99, No 9](#)
 - [Knowledge, Attitude, and Practice of Teachers and Laboratory Technicians toward Chemistry Laboratory Safety in Secondary Schools](#)
 - [Chemistry Teachers’ Self-Efficacy Perception Scale for Teaching in Chemistry Laboratories](#)
 - [STR120: A Web-Based Board Game for Aiding Students in Review of the Structural Theory of Organic Compounds](#)
- [Journal of Chemical Education | Vol 99, No 8](#)
 - [When All You Have Is a Covalent Model of Bonding, Every Substance Is a Molecule: A Longitudinal Study of Student Enactment of Covalent and Ionic Bonding Models](#)
 - [Independent at-Home Chemistry Project for a High School Student: Osmosis Experiments Using a U-Tube Apparatus](#)

- Improving the Understanding of Chemistry by Using the Right Words: A Clear-Cut Strategy to Avoid Misconceptions When Talking about Elements, Atoms, and Molecules
- Visualizing Solutions of the One-Dimensional Schrödinger Equation Using a Finite Difference Method
- Journal of Chemical Education | Vol 99, No 7
 - Inconsistent Language Use in Online Resources Explaining the Mole Has Implications for Students' Understanding
 - A Review of Research on the Teaching and Learning of Chemical Bonding
 - Microcomputer-Based Laboratory Role in Developing Students' Conceptual Understanding in Chemistry: Case of Acid-Base Titration
 - Why Is There a Red Line? A High School Experiment to Model the Role of Gold Nanoparticles in Lateral Flow Assays for COVID-19
 - Integrating Python into a Physical Chemistry Lab
 - Investigating Student Engagement in General Chemistry Active Learning Activities using the Activity Engagement Survey (AcES)
 - Thermodynamics of Wettability: A Physical Chemistry Laboratory Experiment
 - Embedded Questions and Targeted Feedback Transform Passive Educational Videos into Effective Active Learning Tools
 - Harry Potter Themed Digital Escape Room for Addressing Misconceptions in Stoichiometry
 - A Simple, Facile Demonstration of Copper and Nitric Acid Reaction
 - An Alternative to the Flame Test: Using Inexpensive Tesla Coils to Produce the Emission Spectra of Metal Salts
- Journal of Chemical Education | Vol 99, No 6
 - A Sweet Introduction to the Mathematical Analysis of Time-Resolved Spectra and Complex Kinetic Mechanisms: The Chameleon Reaction Revisited
 - The Chemical Wonders of No-Mess Markers
 - Titrating Consumer Acids to Uncover Student Understanding: A Laboratory Investigation Leading to Data-Driven Instructional Interventions
 - Development of a Microscope Stage with Light-Emitting Diodes to Upgrade a Traditional Microscope to a Fluorescence Microscope
- Journal of Chemical Education | Vol 99, No 5
 - Anesthesia as a Theme for Context-Based Learning in a Physical Chemistry Short Course (pharma ?)
 - Virtually Bridging the Safety Gap between the Lecture Hall and the Research Laboratory
 - Invention as a Complement to High School Chemistry
 - Rising Atmospheric Carbon Dioxide Could Doom Ocean Corals and Shellfish: Simple Thermodynamic Calculations Show Why
 - Simulation Game Illustrating the Density-Le Châtelier Effect on a Chemical Equilibrium of the Type $A \rightleftharpoons 2B$
 - An Inexpensive 3D Printed Periscope-Type Smartphone-Based Spectrophotometer for Emission, Absorption, and Fluorescence Spectrometry
 - Impact of Ocean Acidification on Shelled Organisms: Supporting Integration of Chemistry and Biology Knowledge through Multidisciplinary Activities
 - WERNER: A Card Game for Reinforcement Learning of Inorganic Chemistry Nomenclature
- Journal of Chemical Education | Vol 99, No 4
 - Graphical Application to Assist Students Understand the Basic Concepts in Acid-Base Titrations
 - Calculating the pH of a Strong Acid or a Strong Base Before and After Instruction in General and Analytical Chemistry
 - Exploring the Viability and Role of Virtual Laboratories in Chemistry Education Using Two Original Modules

- [Designing Virtual Laboratory Exercises Using Microsoft Forms](#)
- [Creating Representation in Support of Chemical Reasoning to Connect Macroscopic and Submicroscopic Domains of Knowledge](#)
- [Journal of Chemical Education | Vol 99, No 3](#)
 - [Gamified Virtual Laboratory Experience for In-Person and Distance Students](#)
 - [The Case Study Method in Chemistry Teaching: A Systematic Review](#)
 - [Compounds and Molecules: Learning How to Distinguish Them through an Educational Game](#)
 - [Does Virtual Titration Experiment Meet Students' Expectation? Inside Out from Indian Context](#)
 - [Future of the Flipped Classroom in Chemistry Education: Recognizing the Value of Independent Preclass Learning and Promoting Deeper Understanding of Chemical Ways of Thinking During In-Person Instruction](#)
- [Journal of Chemical Education | Vol 99, No 2](#)
 - [Using the Recycled Parts of a Computer DVD Drive for Fabrication of a Low-Cost Arduino-Based Syringe Pump](#)
 - [New Software Application and Case Study That Simplify Teaching Complex Chemical Solubility and Equilibria](#)
 - [Mobile Augmented Reality Laboratory for Learning Acid-Base Titration](#)
 - [The Open-Response Chemistry Cognitive Assistance Tutor System: Development and Implementation](#)
 - [Implementation of Inquiry-Based Science in the Classroom and Its Repercussion on the Motivation to Learn Chemistry](#)
 - [Using the Schoolyard as a Setting for Learning Chemistry: A Sociocultural Analysis of Pre-service Teachers' Talk about Redox Chemistry](#)
 - [Assessment of Practical and Scientific Writing Skills for Pre-University Students through Project-Based Learning](#)
 - [Animated Electrochemistry Simulation Modules](#)
 - [Virtual Reality Assisted General Education of Nuclear Chemistry and Radiochemistry](#)
 - [Digital Tool for the Analysis of UV-Vis Spectra of Olive Oils and Educational Activities with High School and Undergraduate Students](#)
 - [LabPi: A Digital Measuring Station for STEM Education 4.0](#)
 - [Adsorption of Additives in Cola Beverages: A Safe and Improved Experiment Exploring Beer's Law and Adsorption Process](#)
 - [Thirst for a Solution: Alginate Biopolymer Experiments for the Middle and High School Classroom](#)
 - [CHEMTrans: Playing an Interactive Board Game of Chemical Reaction Aeroplane Chess](#)
 - [At-Home Microscale Paper-Based Quantitative Analysis Activity with External Standards](#)
 - [Chemist Bot as a Helpful Personal Online Training Tool for the Final Chemistry Examination](#)
 - [The Thalidomide Mystery: A Digital Escape Room Using Genially and WhatsApp for High School Students](#)
- [Journal of Chemical Education | Vol 99, No 1 - Special Issue on Diversity, Equity, Inclusion, and Respect in Chemistry Education Research and Practice](#)
 - [Investigating the Impact of Assessment Practices on the Performance of Students Perceived to Be at Risk of Failure in Second-Semester General Chemistry](#) Lisa Shah, Adan Fatima, Ahmad Syed, and Eric Glasser, *J. Chem. Educ.* 2022, 99, 1, 14-24 DOI: 10.1021/acs.jchemed.0c01463

2021

- Journal of Chemical Education | Vol 98, No 12
 - Valence Bond and Molecular Orbital: Two Powerful Theories that Nicely Complement One Another
 - Exploring Variation in Ways of Thinking About and Acting to Control a Chemical Reaction
 - A Program-Level Assessment of Student Understanding of Bonding in the Chemistry Major
 - An Integrated Database of Common Chemicals and Chemistry Demonstrations and Student Experiments Used in Hungary
 - Microscale Educational Kits for Learning Chemistry at Home
 - Using NCBI Entrez Direct (EDirect) for Small Molecule Chemical Information Searching in a Unix Terminal
 - How Many Bubbles Are in the Foam Produced during the Candy-Cola Soda Geysers?
 - Finding the pKa Values of a Double-Range Indicator Thymol Blue in a Remote Learning Activity
 - Should We Ban Single-Use Plastics? A Role-Playing Game to Argue and Make Decisions in a Grade-8 School Chemistry Class
 - Using Sodium Hydrogen Carbonate to Teach Chemical Concepts of Thermodynamics
 - Examining the Aufbau Principle and Ionization Energies: A Computational Chemistry Exercise for the Introductory Level
 - Computer Vision in Chemistry: Automatic Titration
 - Another Useful Film Clip: Scientific Methodology of the Frankenstein Monster
- Journal of Chemical Education | Vol 98, No 11
 - Pedagogical Reform in an Introductory Chemistry Course and the Importance of Curricular Alignment (undergraduate)
 - Exemplar Case Studies Demonstrating Why Future Pharmacists Need to Learn Medicinal and Analytical Chemistry (pharma)
- Journal of Chemical Education - Vol 98, No 10
 - What Role May Intuitive Concepts about Chemical Ideas Play When Students Take Timed Tests?
 - Game-Based Learning and Just-in-Time Teaching to Address Misconceptions and Improve Safety and Learning in Laboratory Activities
 - Using a Modular Approach to Introduce Python Coding to Support Existing Course Learning Outcomes in a Lower Division Analytical Chemistry Course
 - Implementation of a Python Program to Simulate Sampling
 - Diffusion of Gases into Air: A Simple Small-Scale Laboratory Activity
 - Using an Infrared Camera to Visualize a Simple Demonstration of Changing the Internal Energy of a System
- Journal of Chemical Education - Vol 98, No 9
 - Exploring Sustainability Metrics in General Chemistry Using Intensive and Extensive Properties of Matter
 - Encouraging Biochemistry Students' Metacognition: Reflecting on How Another Student Might Not Carefully Reflect
 - Investigating How Teachers' Formative Assessment Practices Change Across a Year
 - Teaching Chemistry by a Creative Approach: Adapting a Teachers' Course for Active Remote Learning
 - A Gentle Introduction to Machine Learning for Chemists: An Undergraduate Workshop Using Python Notebooks for Visualization, Data Processing, Analysis, and Modeling
 - SIR (Susceptible-Infectious-Removed) Model of Epidemiology as an Extended Example for Chemical Kinetics Students

- [An Interdisciplinary-Complementary Chemical Approach to Effective Evaluation in Undergraduate Laboratory Experiments](#)
- [Library of 3D Visual Teaching Tools for the Chemistry Classroom Accessible via Sketchfab and Viewable in Augmented Reality](#)
- [Journal of Chemical Education - Vol 98, No 8](#)
 - [LAB Theory, HLAB Pedagogy, and Review of Laboratory Learning in Chemistry during the COVID-19 Pandemic](#)
 - [Electronic Entropy as a Periodic Property of the Elements: A Theoretical Chemistry Approach](#)
 - [An Inexpensive 3D-Printable Do-It-Yourself Visible Spectrophotometer for Online, Hybrid, and Classroom-Based Learning](#)
 - [At-Home Titration: Magnesium Hydroxide in Milk of Magnesia Using an Inexpensive Digital Balance and Natural Food Dye as Indicators](#)
 - [Glowing-in-the-Screen: Teaching Fluorescence with a Homemade Accessible Setup](#)
- [Journal of Chemical Education - Vol 98, No 7](#)
 - [Improving Learning Outcomes and Metacognitive Monitoring: Replacing Traditional Textbook Readings with Question-Embedded Videos](#)
 - [Do Social Chemophobic Attitudes Influence the Opinions of Secondary School Students?](#)
 - [Assessment of Technological Setup for Teaching Real-Time and Recorded Laboratories for Online Learning: Implications for the Return to In-Person Learning](#)
 - [Conversation among Physical Chemists: Strategies and Resources for Remote Teaching and Learning Catalyzed by a Global Pandemic](#)
 - [MolecularARweb: A Web Site for Chemistry and Structural Biology Education through Interactive Augmented Reality out of the Box in Commodity Devices](#)
 - [Calculating Soft-Sphere Ionic Radii for Solid-State Arrangements from Solution Measurements](#)
 - [Introducing Undergraduates to Primary Research Literature](#)
 - [Interactive Lecture in Redox Chemistry: Analysis of the Impact of the Dissemination of University Scientific Research among High School Students](#)
 - [Educational Videogame to Learn the Periodic Table: Design Rationale and Lessons Learned](#)
 - [Escape from Quant Lab: Using Lab Skill Progression and a Final Project to Engage Students](#)
 - [Educational Escape Room: Break Dalton's Code and Escape!](#)
 - [Liquid-Liquid Demonstrations: Phase Equilibria and the Lever Rule](#)
 - [Liquid-Liquid Demonstrations: Critical Opalescence](#)
 - [Liquid-Liquid Demonstrations: Spinodal Decomposition](#)
 - [Integrating Artificial Intelligence to Chemistry Experiment: Carbon Dioxide Fountain](#)
 - [Inexpensive Alkaline Fuel Cell for Introductory Chemistry Classes](#)
- [Journal of Chemical Education - Vol 98, No 6](#)
 - [Mimicking Students' Behavior during a Titration Experiment: Designing a Digital Student-Centered Experimental Environment | Journal of Chemical Education](#)
 - [Designing and 3D Printing an Improved Method of Measuring Contact Angle in the Middle School Classroom | Journal of Chemical Education](#)
 - [Polysketch Pen: Drawing from Materials Chemistry to Create Interactive Art and Sensors Using a Polyaniline Ink | Journal of Chemical Education](#)
 - [Exploring Chemical Kinetics at Home in Times of Pandemic: Following the Bleaching of Food Dye Allura Red Using a Smartphone | Journal of Chemical Education](#)
 - [Advantages and Disadvantages of Using the Answer-Until-Correct Multiple-Choice Test Format for a Class of Non-STEM Majors | Journal of Chemical Education](#)

- [Journal of Chemical Education - Vol 98, No 5](#)
 - [Combining Jigsaws, Rule-Based Learning, and Retrieval Practice Improves IUPAC Nomenclature Competence | Journal of Chemical Education](#)
 - [Using Classical Test Theory and Rasch Modeling to Improve General Chemistry Exams on a Per Instructor Basis | Journal of Chemical Education](#)
 - [Sample Plan for Easy, Inexpensive, Safe, and Relevant Hands-On, At-Home Wet Organic Chemistry Laboratory Activities | Journal of Chemical Education](#)
 - ["Ethics against Chemistry": Solving a Crime Using Chemistry Concepts and Storytelling in a History of Science-Based Interactive Game for Middle School Students | Journal of Chemical Education](#)
 - [Formation of a Water Ball in a Water Bottle to Learn the Chemistry of Surfactants | Journal of Chemical Education](#)
 - [Using Classic Movie Chemistry Scenes to Introduce Classroom Activities | Journal of Chemical Education](#)
- [Journal of Chemical Education - Vol 98, No 4](#)
 - [Design, Implementation, and Evaluation of a Scientific Modeling Course on Concentration Cells | Journal of Chemical Education](#)
 - [Utilizing Unexpected Results in Water Electrolysis to Engage Students in Scientific Inquiry | Journal of Chemical Education](#)
 - [Tactile Models for the Visualization, Conceptualization, and Review of Intermolecular Forces in the College Chemistry Classroom | Journal of Chemical Education](#)
 - [Computational Chemistry Activities with Avogadro and ORCA | Journal of Chemical Education](#)
 - [Facile Method for Constructing Lewis \(Electron Dot\) Structures | Journal of Chemical Education](#)
- [Journal of Chemical Education - Vol 98, No 3](#)
 - [From Ideas to Items: A Primer on the Development of Ordered Multiple-Choice Items for Investigating the Progression of Learning in Higher Education STEM | Journal of Chemical Education](#)
 - [Use of Simulations and Screencasts to Increase Student Understanding of Energy Concepts in Bonding | Journal of Chemical Education](#)
 - [Let Students Choose: Examining the Impact of Open Educational Resources on Performance in General Chemistry | Journal of Chemical Education](#)
 - [Introducing High School Students to the Avogadro Number and the Mole Concept Using Discovery with Calculations Based on Physical Properties of Elements, Crystal Structures, and 28Si Spheres | Journal of Chemical Education](#)
 - [Connecting Chemistry to Mathematics by Establishing the Relationship between Conductivity and Concentration in an Interdisciplinary, Computer-Based Project for High School Chemistry Students | Journal of Chemical Education](#)
 - [From Passive Observers to Active Participants: Using Interactive Remote Demonstrations to Increase Student Involvement in Online Chemistry Instruction | Journal of Chemical Education](#)
 - [Using Pop-Culture to Engage Students in the Classroom | Journal of Chemical Education](#)
 - [Chemical Battleship: Discovering and Learning the Periodic Table Playing a Didactic and Strategic Board Game | Journal of Chemical Education](#)
 - [A Choose-Your-Own-Adventure-Style Virtual Lab Activity | Journal of Chemical Education](#)
 - [Turmeric and RGB Analysis: A Low-Cost Experiment for Teaching Acid-Base Equilibria at Home | Journal of Chemical Education](#)
 - [MILAGE LEARN+: A Mobile Learning App to Aid the Students in the Study of Organic Chemistry | Journal of Chemical Education](#)
 - [At-Home Real-Life Sample Preparation and Colorimetric-Based Analysis: A Practical](#)

- Experience outside the Laboratory | Journal of Chemical Education
- Titrate over the Internet: An Open-Source Remote-Control Titration Unit for All Students | Journal of Chemical Education
- Journal of Chemical Education - Vol 98, No 2
 - Dimensions of Variation in Chemistry Instructors' Approaches to the Evaluation and Grading of Student Responses
 - Epistemological Profile of Chemical Bonding: Evaluation of Knowledge Construction in High School
 - Using Games to Build and Improve 10th Grade Students' Understanding of the Concept of Chemical Bonding and the Representation of Molecules
 - What Is in a Prerequisite? An Observational Study on the Effect of General Chemistry on Organic Chemistry Performance
 - Teaching Cheminformatics through a Collaborative Intercollegiate Online Chemistry Course (OLCC)
 - Determining University Students' Familiarity and Understanding of Laboratory Safety Knowledge—A Case Study
 - Modular Science Kit as a support platform for STEM learning in primary and secondary school
 - Exploring Chemistry with Wireless, PC-Less Portable Virtual Reality Laboratories
 - CheMakers: Playing a Collaborative Board Game to Understand Organic Chemistry
 - ChemistDice: A Game for Organic Functional Groups
 - Introducing Students to the Periodic Table Using a Descriptive Approach of Superheroes, Meats, and Fruits and Nuts
 - Discovering the Chemical Mechanism of Common Heating Agents: A Stepwise Inquiry with Student-Designed Experiments in a High School Laboratory Course
 - Building a Raspberry Pi Spectrophotometer for Undergraduate Chemistry Classes
 - From Abstract to Manipulatable: The Hybridization Explorer, A Digital Interactive for Studying Orbitals
 - 360° Virtual Laboratory Tour with Embedded Skills Videos
 - Clarity on Cronbach's Alpha Use
 - A Creative Commons Textbook for Teaching Scientific Computing to Chemistry Students with Python and Jupyter Notebooks
 - Resuscitating the Mercury Beating Heart: An Improvement on the Classic Demo
- Journal of Chemical Education | Vol 98, No 1 - Special Issue on Chemical Safety Education: Methods, Culture, and Green Chemistry
 - Safety Moments in Chemical Safety Education | Journal of Chemical Education
 - RAMP: A Safety Tool for Chemists and Chemistry Students | Journal of Chemical Education
 - Building Strong Cultures with Chemical Safety Education | Journal of Chemical Education
 - An Engaging and Fun Breakout Activity for Educators and Students about Laboratory Safety | Journal of Chemical Education
 - Reinterpreting Popular Demonstrations for Use in a Laboratory Safety Session That Engages Students in Observation, Prediction, Record Keeping, and Problem Solving | Journal of Chemical Education
 - Open Digital Educational Resources for Self-Training Chemistry Lab Safety Rules | Journal of Chemical Education
 - Using Virtual Reality to Demonstrate Glove Hygiene in Introductory Chemistry Laboratories | Journal of Chemical Education
 - Developing Risk Assessment Competencies in Preservice K-12 Teachers | Journal of Chemical Education
 - Safe Handling of Gas Generating Experiments Using Disposable Plastic Syringes | Journal

of Chemical Education

2020

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 - [Interactions 500: Design, Implementation, and Evaluation of a Hybrid Board Game for Aiding Students in the Review of Intermolecular Forces During the COVID-19 Pandemic](#)
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 - [Project-Based Experiment in a Physical Chemistry Teaching Laboratory: Ion Effects on Caffeine Partitioning Thermodynamics](#)
- [Octobre - Journal of Chemical Education - Vol 97, No 10](#)
 - [Commentary on the Models of Electronegativity](#)
 - [Teachers' Noticing, Interpreting, and Acting on Students' Chemical Ideas in Written Work](#)
 - [Review to Analyze and Compare Virtual Chemistry Laboratories for Their Use in Education](#)
 - [Are Heating and Stirring Required to Dissolve Salt in Water? Answers from Quantitative Experimental Evidence](#)
 - [Creation of a Phenol/Water Phase Diagram Using a Low-Cost Automated System and](#)

Remote Transmission

- A Hybrid Board Game to Engage Students in Reviewing Organic Acids and Bases Concepts
- Determining the Energy of Activation of a Salt, Water, and Alcohol Emulsion
- **Septembre - Journal of Chemical Education - Vol 97, No 9**
 - Introduction to the Journal of Chemical Education Special Issue on Insights Gained While Teaching Chemistry in the Time of COVID-19
 - Remote Interview Methods in Chemical Education Research
 - Attempts, Successes, and Failures of Distance Learning in the Time of COVID-19
 - Modeling Meaningful Chemistry Teacher Education Online: Reflections from Chemistry Preservice Teacher Educators in Australia
 - Experience-Based Learning Approach to Chemical Kinetics: Learning from the COVID-19 Pandemic
 - Reflections on Three Different High School Chemistry Lab Formats during COVID-19 Remote Learning
 - Using Hands-On Chemistry Experiments While Teaching Online
 - Building an Interactive Immersive Virtual Reality Crime Scene for Future Chemists to Learn Forensic Science Chemistry
 - Development and Use of Kitchen Chemistry Home Practical Activities during Unanticipated Campus Closures
 - Determination of a Kinetic Law of Phosphorescence Decay Using a Conventional Photo Camera and Free Image Processing Software
 - Use of 3D Printing to Manufacture Document Camera Mounts in Support of Online Education Shifts during the COVID-19 Pandemic
 - Benefits of Simulations as Remote Exercises During the COVID-19 Pandemic: An Enzyme Kinetics Case Study
 - Re-flipping in the Remote Classroom: The Surprising Uptake of Video-Recorded Worked Examples
 - Escape the (Remote) Classroom: An Online Escape Room for Remote Learning
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 - Online Data Generation in Quantitative Analysis: Excel Spreadsheets and an Online HPLC Simulator Using a Jupyter Notebook on the Chem Compute Web site
 - At-Home Colorimetric and Absorbance-Based Analyses: An Opportunity for Inquiry-Based, Laboratory-Style Learning
 - A Community Springs to Action to Enable Virtual Laboratory Instruction
 - Plans vs Reality: Reflections on Chemical Crystallography Online Teaching During COVID-19
 - Chemistry in the Kitchen Laboratories at Home
 - Developing Engaging Remote Laboratory Activities for a Nonmajors Chemistry Course During COVID-19
 - Setting Up an Educational Column Chromatography Experiment from Home
 - Choose Your Own "Labventure": A Click-Through Story Approach to Online Laboratories during a Global Pandemic
 - Stay at Home Laboratories for Chemistry Courses
 - When the Kitchen Turns into a Physical Chemistry Lab
 - The Sudden Switch to Online Teaching of an Upper-Level Experimental Physical Chemistry Course: Challenges and Solutions
 - Using Student Insights for Ideas on Video Creation for Chemistry Classes

- Insights Gained During COVID-19: Refocusing Laboratory Assessments Online
- Assessing Student Learning in a Rapidly Changing Environment: Laboratories and Exams
- Designing a Hybrid Biopharmaceutical Laboratory Course to Enhance Content Flexibility and Access
- Remote Teaching and Learning in a Pandemic: Reflections from Chemistry Instructors at a Pharmacy School in Jordan
- Implications for the Use of PowerPoint, Classroom Response Systems, Teams, and Whiteboard to Enhance Online Teaching of Chemistry Subjects in Community College
- Remote Teaching of General Chemistry for Nonscience Majors during COVID-19
- Asynchronous Online Assessment of Physical Chemistry Concepts in the Time of COVID-19
- Using Familiar and New Assessment Tools in Physical Chemistry Courses During COVID-19
- An Applied Research-Based Approach to Support Chemistry Teachers during the COVID-19 Pandemic
- Online Experimentation during COVID-19 Secondary School Closures: Teaching Methods and Student Perceptions
- Gamification of ChemDraw during the COVID-19 Pandemic: Investigating How a Serious, Educational-Game Tournament (Molecule Madness) Impacts Student Wellness and Organic Chemistry Skills while Distance Learning
- Going Remote: How Teaching During a Crisis is Unique to Other Distance Learning Experiences
- Challenges in General Chemistry: The Effect of Moving Online in the Middle of the Semester
- Minimize Online Cheating for Online Assessments During COVID-19 Pandemic
- Strategies for Effective Assessments while Ensuring Academic Integrity in General Chemistry Courses during COVID-19
- Revisiting Distance Learning Resources for Undergraduate Research and Lab Activities during COVID-19 Pandemic
- août
 - A Review of Biochemistry Education Research
 - Factors Influencing Student Learning in Semi-Flipped General Chemistry Courses
 - Short Course on Sustainable Polymers for High School Students
 - Demonstrating Basic Properties and Application of Polarimetry Using a Self-Constructed Polarimeter
 - Go Fischer: An Introductory Organic Chemistry Card Game
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 - Practical Decomposition of Irreducible Representations: Applications to Molecular Vibrations and Molecular Orbitals
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 - Matching Five White Solids to Common Chemicals: A Dissolution Calorimetry and

Acid-Base Titration Experiment

- Modified Method for Extraction of Photosynthetic Plant Pigments for Microcolumn Chromatography
- juillet
 - A Walk in the Clouds: Cautionary Tales from a Century of Chemical Agent Work
 - Ricin and Saxitoxin: Two Natural Products That Became Chemical Weapons
 - Security of Chemical Laboratories in Schools and Universities in Slovakia
 - A Proposed Integrated Framework for Chemical Safety and Chemical Security
 - Experimenting with At-Home General Chemistry Laboratories During the COVID-19 Pandemic
 - Chemistry and Mathematics of the Belousov-Zhabotinsky Reaction in a School Laboratory
 - Illustrating the Concepts of Entropy, Free Energy, and Thermodynamic Equilibrium with a Lattice Model
 - Establishing a Connection for Students between the Reacting System and the Particle Model with Games and Stochastic Simulations of the Arrhenius Equation
 - Mock Urinalysis Demonstration: Making Connections among Acid-Base Chemistry, Redox Reactions, and Healthcare in an Undergraduate Nursing Course
 - Fabricating a Low-Cost, Simple, Screen Printed Paper Towel-Based Experimental Device to Demonstrate the Factors Affecting Chemical Equilibrium and Chemical Equilibrium Constant, K_c
 - Interactive Unit Cell Visualization Tool for Crystal Lattice Structures
- juin
 - 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
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 - 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
- mai
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 - 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 ΔH_{vap} of Organic Liquids to Intermolecular Forces: Simple Modifications of a Classic General Chemistry Experiment
 - Visualizing 3D Molecular Structures Using an Augmented Reality App

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- avril
 - 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
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 - Comment on "Should Organic Chemistry Be Taught as Science?"
- mars
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 - 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
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 - Team-Based Learning for Scientific Computing and Automated Experimentation: Visualization of Colored Reactions
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L'article [Influencing the practice of chemistry education](#) *Chem. Educ. Res. Pract.*, 2019, DOI: 10.1039/C9RP90006C (Editorial) de Michael K. Seery propose de nombreux liens d'articles importants en CER (chemical education research) :

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)

Sujet	Citation
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](#) :

- Celebrating our 2020 Prize and Award winners, 2020
- 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
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- Diagnostic Assessment in Chemistry, 2011
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- The Laboratory in Science Education: The State of the Art, 2007
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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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2024

- Volume 25, 01 January 2024, Issue 1, Page 1 to 374
 - Exploring senior high-school students' understanding of electrochemical concepts: patterns of thinking across Turkish and Indonesian contexts - Chemistry Education Research and Practice (RSC Publishing)
 - Effects of formative assessment with technology on students' meaningful learning in chemistry equilibrium concepts - Chemistry Education Research and Practice (RSC Publishing)

2023

- Volume 24, 01 October 2023, Issue 4, Page 1101 to 1275
 - The use of frameworks in chemistry education research
 - Pre-service chemistry teachers' understanding of knowledge related to climate change
 - "I guess it was more than just my general knowledge of chemistry": exploring students' confidence judgments in two-tiered assessments
- Volume 24, 01 July 2023, Issue 3, Page 785 to 1099
 - Learning to teach chemical bonding: a framework for preservice teacher educators
 - Enhancing academic performance and student success through learning analytics-based personalised feedback emails in first-year chemistry
 - Impacts of the flipped classroom on student performance and problem solving skills in secondary school chemistry courses
- Volume 24, 01 April 2023, Issue 2, Page 385 to 784
 - The efficacy of instruction in application of mole ratios and submicro- and macro-scopic equivalent forms of the mole within the unit factor method
 - Revealing the development of interaction among components of pedagogical content knowledge in teaching chemical equilibrium
 - Students' interactive engagement, academic achievement and self concept in chemistry: an evaluation of cooperative learning pedagogy
 - Could competence-based chemistry teaching in secondary school harm students' performance in upper traditional exams?
- Volume 24, 01 January 2023, Issue 1, Page 1 to 383
 - Guided inquiry-based learning in secondary-school chemistry classes: a case study
 - Understanding covalent bonding – a scan across the Croatian education system
 - Inoculating students against science-based manipulation strategies in social media: debunking the concept of 'water with conductivity extract'
 - Pre-service chemistry teachers' knowledge of the coordination number and the oxidation number in coordination compounds
 - Secondary chemistry teacher learning: precursors for and mechanisms of pedagogical conceptual change
 - Developing green chemistry educational principles by exploring the pedagogical content knowledge of secondary and pre-secondary school teachers
 - Looking for solutions: students' use of infrared cameras in calorimetry labs

2022

- Volume 23, 01 October 2022, Issue 4, Page 759 to 997

- Reading textual and non-textual explanations in chemistry texts and textbooks – a review
- Examining relationships between chemistry anxiety, chemistry identity, and chemistry career choice in terms of gender: a comparative study using multigroup structural equation modelling
- Promoting metacognition through measures of linked concepts with learning objectives in introductory chemistry
- Intersecting visual and verbal representations and levels of reasoning in the structure of matter learning progression
- Development of pre-service teachers' pedagogical content knowledge and the factors affecting that development: a longitudinal study
- Volume 23, 01 July 2022, Issue 3, Page 509 to 757
 - Development of pre-service chemistry teachers' pedagogical content knowledge through mentoring
 - ChemSims: using simulations and screencasts to help students develop particle-level understanding of equilibrium in an online environment before and during COVID
 - Relevance and equity: should stoichiometry be the foundation of introductory chemistry courses?
- Volume 23, 01 April 2022, Issue 2, Page 277 to 507
 - Pedagogical chemistry sensemaking: a novel conceptual framework to facilitate pedagogical sensemaking in model-based lesson planning
 - How do we know when students are learning? Shining a light on chemistry education practitioner research articles
 - VR in chemistry, a review of scientific research on advanced atomic/molecular visualization
 - Development of the Water Instrument: a comprehensive measure of students' knowledge of fundamental concepts in general chemistry
 - Student teachers' problem-based investigations of chemical phenomena in the nearby outdoor environment
 - Benefits of desirable difficulties: comparing the influence of mixed practice to that of categorized sets of questions on students' problem-solving performance in chemistry
 - Problem solving in chemistry supported by metacognitive scaffolding: teaching associates' perspectives and practices
- Volume 23, 01 January 2022, Issue 1, Page 1 to 275
 - Development of a framework to capture abstraction in physical chemistry problem solving
 - Pre-service chemistry teachers' use of pedagogical transformation competence to develop topic-specific pedagogical content knowledge for planning to teach acid-base equilibrium
 - The conceptual profile of equilibrium and its contributions to the teaching of chemical equilibrium

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- Volume 22, 01 October 2021, Issue 4, Page 803 to 1092
 - Considerations of sample size in chemistry education research: numbers do count but context matters more!
 - Discipline-specific cognitive factors that influence grade 9 students' performance in chemistry
 - Incorporating concept development activities into a flipped classroom structure: using PhET simulations to put a twist on the flip
 - Examining learning of atomic level ideas about precipitation reactions with a resources

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- Teaching of experimental design skills: results from a longitudinal study
- Preservice teachers' enactment of formative assessment using rubrics in the inquiry-based chemistry laboratory
- Volume 22, 01 July 2021, Issue 3, Page 555 to 801
 - Writing a review article: what to do with my literature review
 - Student success and the high school-university transition: 100 years of chemistry education research
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- [Secondary school students' chemistry self-concepts: gender and culture, and the impact of chemistry self-concept on learning behaviour](#)
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