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.

2025

- Journal of Chemical Education Vol. 102 No. 11 - ACS Publications
  - Does Using Prompting Strategies Affect the Production of Higher-Quality Socio-Scientific Issue Activity? Analysis of Nuclear Energy and Pesticide Use Cases for High School Chemistry Teaching
  - Classification of NaCl and CsCl Crystal Structures: Establishing an Integrated Didactic Approach for Machine Learning and Chemistry in Upper Secondary Education
  - Exploring the Syntheses and Biomedical Applications of Nanoparticles: Simple Activities and Demonstrations for Middle and Early High School Students
  - Custom-Designed Video Game for Chemistry Revision Gamification
- Journal of Chemical Education Vol. 102 No. 10 - ACS Publications
  - From Childhood to Classroom: Teaching the Periodic Table of Elements through Collectible Sticker Cards
  - Using Local LLM Tools to Optimize Chinese High School Chemistry Education: Practice, Challenges, and Future Directions
  - Making Nanoscale Science Research Accessible to High School Students through the Summer Ventures Course
  - Development of a Level-Based Test for Assessment of Student Conceptual Understanding in Learning Combustion
  - Connecting High School Students to College Students through Chemistry Laboratory Experiences
  - Botanical Textile Printing: A Creative Approach to Teaching Chemistry in High School
  - Establishing the Effect of Solvent Polarity on Carotenoid Extraction: A Small-Scale Solid–Liquid Extraction and Alkene Identification Experiment for Senior High School Students
  - Droplet-Based Educational Kit for Young Students: Hands-On Experiments from Precipitation Reactions to Magnetic Drug Delivery
- Journal of Chemical Education Vol. 102 No. 9 - ACS Publications
  - Generative AI in Chemistry Education: Current Progress, Pedagogical Values, and the Challenge of Rapid Evolution (editorial)
  - A Review of Teaching Experimental Design in Chemistry
  - Model Experiments in Chemistry Education: A Classification Framework
  - Conception and Evaluation of ClimateLab_OS: Interdisciplinary Climate Education in a German Chemistry Student Laboratory
  - Design and Implementation of a General Chemistry Course that Promotes AI Use
  - Plastic Detective: A Citizen Inquiry Mobile App for Promoting Chemistry Learning about the Circular Plastic Economy
- Journal of Chemical Education Vol. 102 No. 8 - ACS Publications
  - Exploring the Plurality of Chemical Modeling: Implications for Chemistry Teaching

    - Examining How Preservice Chemistry Teachers Conceptualize Transdisciplinary Practice Stipulated in a Chemistry Curriculum
    - Have You Ever Seen a Microplastic? A Collaborative High School–Academia Approach for Identification, Quantification and Raising Awareness of Microplastics in a River Crossing Urban Area
    - Evaluating the Effectiveness and Pharmacy Students' Perceptions of the Flipped Classroom Model in a Pharmaceutical Sciences Course
    - Application of Drama-Based Teaching Mode in Chemistry Teaching
    - Identification and Quantification of Ferrous Iron in an Oral Liquid Using Lab-on-Paper: A Novel High School Chemistry Experiment for Preservice Teachers
    - A Comprehensive Experiment for Pharmaceutical Students: Understanding Surface Modifications and Its Use in Pharmaceutical Industry
    - Quartz Crystal Microbalance (QCM)-Based Portable System for Visualizing Reaction Kinetics in Secondary Chemistry Education
    - Teaching Kinetic Reaction Chemistry Concepts to High School Students through Interactive Rock-Paper-Scissors and LEGO Brick Models
    - Designing a Virtual Chemistry Experiment with Claude for Middle School: Exploring Hydrangea Flower Color Modification
- Journal of Chemical Education Vol. 102 No. 7 - ACS Publications
    - Green Chemistry Experiment with Intercultural Virtual Exchange at the High School Level
    - Identifying Chemical Systems Thinking Conceptual Framework for High School Students
    - Improving the Understanding of Chemistry by Using the Right Words: Employing Inorganic Formulas to Convey Chemical Structure
    - Learning Through Exploration: Promoting Understanding of Climate Change and Environmental Studies to High School Students from Historically Marginalized Backgrounds
    - Chemdoku: A Sudoku-Inspired Activity for Middle and High School Students to Explore Element Nomenclature and History
    - Lost in Humus: An Educational Escape Game Focused on Soil Analysis
    - Transforming Carbon Dioxide into Rocks!? Experiments for Understanding Carbon Dioxide Removal through Chemical Weathering
- Journal of Chemical Education Vol. 102 No. 6 - ACS Publications
    - Experimental Study on Eliminating Misconceptions Regarding the Law of Conservation of Mass in Chemical Reactions in Gifted Students
- Journal of Chemical Education Vol. 102 No. 5 - ACS Publications
    - Snakeleev: A Gamified Serious Game for Learning the Periodic Table
    - Virtual Periodic Table for Dynamic Visualization of Atomic Structure and Hierarchical-Based Interaction: A System to Enhance Student's Learning
    - A Hands-on Experiment of Caffeine Extraction from Tea Leaves Using Direct Sublimation: Learning Effectiveness for Secondary School Students
    - A Didactic Sequence Inspired by the Historical Evolution of Colorimetry to Introduce the Lambert–Beer Law at High School Level
- Journal of Chemical Education Vol. 102 No. 4 - ACS Publications
    - High School Students Experimenting with Computational Chemistry: Design-Based Research on and through the "Comp-Chem-Lab"
    - 1925–2024: One Century of Educational Games in Chemistry
    - STEM Education in Natural Science Teaching to Secondary School Students: Case Study of Making a pH Measuring Pen in Soil Application of IoT Technology
- Journal of Chemical Education Vol. 102 No. 3 - ACS Publications
    - Effects of Game-Based Learning on Students' Motivation in Chemistry: A Meta-analysis
- Journal of Chemical Education Vol. 102 No. 2 - ACS Publications

    - Improving Pre-Service Teachers' Content Knowledge Related to Teaching Secondary School Science: A Case Concerning Functional Groups and Isomers
    - Medicines, the Haute Couture of Pharmacy: A Summer Camp for High School Students
    - A Review of the Literature on Project-Based Learning in High School Chemistry over the Past Decade in the Journal of Chemical Education
    - Primary Reactions Race: Exploring Basic Chemical Reactions in a Didactic Board Game for Future Educators
    - Solubility and Extractability in the Pharmaceutical Sciences: A Practical Exercise with Pure Compounds
    - From Atom Decoration to Pattern Recognition: A Novice-to-Expert Journey in Lewis Structures
    - Comic Zines as Tools for Chemistry Education and Engaging Students
- Journal of Chemical Education Vol. 102 No. 1 - ACS Publications
    - Preservice Chemistry Teachers' Conceptual Understanding and Confidence Judgment: Insights from a Three-Tier Chemistry Concept Inventory
    - Linking the Topics "Climate Change and Nutrition" by Discussing Sustainability in Chemistry Lessons at School
    - Teaching Formal Charges of Lewis Electron Dot Structures by Counting Attachments
    - Stocked: An Educational Lab Safety Card Game
    - Content Analysis of Chemistry Curriculum Standards for Chinese High Schools Based on the Technology and Engineering Literacy Framework
    - Developing Affordable and Research-Grade Measurement Devices with Arduino for School Science: A Guide for Non-Coders

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- Journal of Chemical Education Vol. 101 No. 12 - ACS Publications
    - Chemical Kitchen–A Transdisciplinary Introduction to a Laboratory Practice That Rebalances Students' Self-Efficacy
    - Creating a Chemical Escape Room at the University Level: Innovative Resources for Future Primary School Teachers
    - Research on the Application of Localized Argument-Driven Inquiry Teaching Model in a High School in Northeast China
    - Introducing High School Students to the Amount of Substance, the Mole, and Avogadro's Number Through a Hands-On Guided Inquiry Activity Using 3-D Geometrically Shaped Samples of Elements and Cubes Made of LEGO Bricks
- Journal of Chemical Education Vol. 101 No. 11 - ACS Publications
    - A Review of Research on Learning Activities Addressing the Submicroscopic Level in Chemistry
    - Looking at Electrochemistry through a Concentration Cell: A High School Laboratory Activity Integrated into a Data Access System Explored with Preservice Chemistry Teachers
    - Students' Ability to Work with the Periodic Table: The Use of Three-Tier Tasks
    - "I Did the Best I Possibly Could": Factors Influencing Teachers' Incorporation of Climate Science in High School Chemistry
    - Let Us Not Squander the Affordances of LLMs for the Sake of Expedience: Using Retrieval Augmented Generative AI Chatbots to Support and Evaluate Student Reasoning
    - Household Experiment Based on Smartphones: Chemical Equilibrium and Acid–Base Titration Experiment Using Red Cabbage and Sodium Carbonate

    - Do You Want to Make a Battery? Insights from the Development and Evaluation of a Chemistry Public Engagement Activity
- Journal of Chemical Education Vol. 101 No. 10 - ACS Publications
    - Secondary School Teachers' Beliefs about the Role of Culture in Chemistry Class and Their Ways of Considering and Engaging in It
    - Exploring Differences in Student Learning and Inquiry Skills Between Hands-On and Virtual Chemistry Laboratories
    - Effect of Computer Simulations on Student Ability to Translate Chemical Representations When Learning the Particulate Nature of Matter Concept
    - Evaluation of the Use of a 360° Immersive Visit of the Organic Chemistry Practical Laboratory for Pharmacy Students
    - UFV Game: Creating a Fun Upgradeable Card Game to Engage Students in Learning Chemical Formula and Valence
- 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
  - Identificat'ions: 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

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- 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 Geyser 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 Pharmaceutics 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

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- 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 ⇌ 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

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- 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 Geyser?
  - 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
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  - JCE Classroom Activities Virtual Issue: Celebrating 15 Years with the 15 Greatest Hits, 1997-2012, Erica K. Jacobsen (DOI: 10.1021/ed300347g)
  - Galilean Thermometer Not So Galilean, Peter Loyson (DOI: 10.1021/ed200793g)
  - What Are the "Foundations of Inorganic Chemistry"? Two Answers, Gary P. Wulfsberg (DOI: 10.1021/ed200678u)
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  - The infrared spectra of four isotopes in HCl: A molecular structure experiment, L. Willard Richards
  - The Chemistry of Perfume: A Laboratory Course for Nonscience Majors, Jennifer L. Logan, Craig E. Rumbaugh
- Reports
  - The Environmental Chemistry of Trace Atmospheric Gases, William C. Trogler
  - A Spreadsheet Exercise To Teach the Fourier Transform in FTIR Spectrometry, Brent Shepherd and Michael K. Bellamy
  - QR-Coded Audio Periodic Table of the Elements: A Mobile-Learning Tool, Vasco D. B. Bonifácio
- Letters
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- Editorials
  - Navigating the Landscape of Assessment, Stacey Lowery Bretz
  - What Do You Do? I Teach Chemistry!, Gregory T. Rushton
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- Commentaries
  - Hyperconjugation: A More Coherent Approach, Joseph J. Mullins
  - What Are Elements and Compounds?, Rollie J. Myers
  - Summer 2012 Book and Media Recommendations, Cheryl B. Frech, Brian P. Coppola, Hal Harris, and C. M. Woodbridge
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  - Isolation and Analysis of Essential Oils from Spices, Stephen K. O’Shea, Daniel D. Von Riesen, and Lauren L. Rossi

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- 89 Colorful Lather Printing, S. A. S. Hershberger, M. Nance, A. M. Sarquis, L. M. Hogue
- 105 A Sticky Situation: Chewing Gum and Solubility, I. M. Montes-González, J. A. Cintron-Maldonado, I. E. Párez-Medina, V. Montes-Berríos, S. N. Román-López
- 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
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- 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
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- 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
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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)

Sujet	**Citation**
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
- Sustainable Development and Green Chemistry in Chemistry Education, 2012
- Diagnostic Assessment in Chemistry, 2011
- Evidentially-Based Curriculum Development, 2010
- Chemistry Teacher Education – Recent Developments, 2009
- Research and Practice in Chemical Education in Advanced Courses, 2008
- The Laboratory in Science Education: The State of the Art, 2007
- Chemical Education Research in Glasgow in Perspective, 2006
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- Teaching Chemistry and Physics, 2003
- Structural Concepts, Part II, 2002
- Structural Concepts: Contributions from Science, Science Education, History and Philosophy of Science, 2001

Advance articles

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- 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 framework
    - Student perspectives on chemistry intelligence and their implications for measuring chemistry-specific mindset
    - The impact of representations of chemical bonding on students' predictions of chemical properties
    - 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
    - The role of visuospatial thinking in students' predictions of molecular geometry
    - Effects of a context-based approach with prediction–observation–explanation on conceptual understanding of the states of matter, heat and temperature)
    - Creating and testing an activity with interdisciplinary connections: entropy to osmosis
    - Chemistry instructors' intentions toward developing, teaching, and assessing student representational competence skills - Chemistry Education Research and Practice (RSC Publishing)
    - Effects of different ways of using visualizations on high school students' electrochemistry conceptual understanding and motivation towards chemistry learning - Chemistry Education Research and Practice (RSC Publishing)
- Volume 22, 01 April 2021, Issue 2, Page 227 to 553
    - The topic-specific nature of experienced chemistry teachers' pedagogical content knowledge in the topics of interactions between chemical species and states of matter - Chemistry Education Research and Practice (RSC Publishing)
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    - Video-based instruction on safety rules in the chemistry laboratory: its effect on student achievement - Chemistry Education Research and Practice (RSC Publishing)
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    - 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
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