# 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. 12 - ACS Publications
  - One Rule to Rule Them All: Inviting Discussions about Content and Process in Johnstone's Triangle
  - Alternative Daniell Cells as a First Encounter with the Electrochemistry of Batteries: A High School Chemistry Competition Laboratory Experiment
- 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

## 2024

- 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

## 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 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

## 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 ⇌ 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 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
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    - cf. Are you making the most of formative assessment? David Read, education in chemistry, RSC, 2021
  - Teaching an Introductory Organic Chemistry Class for High School Students | Journal of Chemical Education
  - Derivation of the Theoretical Minimum Energy of Separation of Desalination Processes | Journal of Chemical Education
  - Fun with Flags and Chemistry | Journal of Chemical Education
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  - A Photographic Process Using Easily Available Reagents | Journal of Chemical Education
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  - Structural Chemistry 2.0: Combining Augmented Reality and 3D Online Models | Journal of Chemical Education
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- février
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  - Teaching Kinetics and Equilibrium Topics Using Interlocking Building Bricks in Hands-on Activities | Journal of Chemical Education
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  - Making Acids and Bases MORE Basic: Supporting Students' Conceptualization of Acid–Base Chemistry through a Laboratory Exercise That Connects Molecular-Level Representations to Symbolic Representations and Experimentally Derived Evidence | Journal of Chemical Education
  - Manipulating Dendritic Growth: An Undergraduate Laboratory Experience with the Interplay between Mass Transport, Supersaturated Solutions, and Dendrite Structure | Journal of Chemical Education
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  - Fast, Easy, Reproducible Method for Planting Fingerprints for Ninhydrin, Iodine Development | Journal of Chemical Education
- janvier
  - Problem-Solving Behaviors of Different Achievement Groups on Multiple-Choice Questions in General Chemistry Melonie A. Teichert, Maria J. Schroeder, Shirley Lin, Debra K. Dillner, Regis Komperda, Diane M. Bunce, J. Chem. Educ. 2020, 97, 1, 3-15 DOI: 10.1021/acs.jchemed.9b00774
  - Dissecting the Flipped Classroom: Using a Randomized Controlled Trial Experiment to Determine When Student Learning Occurs Matthew D. Casselman, Kinnari Atit, Grace Henbest, Cybill Guregyan, Kiana Mortezaei, Jack F. Eichler, J. Chem. Educ. 2020, 97, 1, 27-35 DOI: 10.1021/acs.jchemed.9b00767
  - A Study To Reduce Chemical Waste Generated in Chemistry Teaching Laboratories Hui Yi Goh, Wei Wen, Clarence Wong, Yue Ying Ong, J. Chem. Educ. 2020, 97, 1, 87-96 DOI: 10.1021/acs.jchemed.9b00632
  - Applications of 3D-Printing for Improving Chemistry Education Cody W. Pinger, Morgan K. Geiger, Dana M. Spence, J. Chem. Educ. 2020, 97, 1, 112-117 DOI: 10.1021/acs.jchemed.9b00588
  - ChemEscape: Educational Battle Box Puzzle Activities for Engaging Outreach and Active Learning in General Chemistry Marissa L. Clapson, Brian Gilbert, Vivian J. Mozol, Shauna Schechtel, Judy Tran, Stephen White, J. Chem. Educ. 2020, 97, 1, 125-131 DOI: 10.1021/acs.jchemed.9b00612
  - Do-It-Yourself: Creating and Implementing a Periodic Table of the Elements Chemical Escape Room Malka Yayon, Shelley Rap, Vered Adler, Inbar Haimovich, Hagit Levy, Ron Blonder, J. Chem. Educ. 2020, 97, 1, 132-136 DOI: 10.1021/acs.jchemed.9b00660
  - Microplastics Outreach Program: A Systems-Thinking Approach To Teach High School Students about the Chemistry and Impacts of Plastics Jamie M. Schiffer, Johnnie Lyman, Debra Byrd, Hercules Silverstein, Mathew D. Halls, J. Chem. Educ. 2020, 97, 1, 137-142

DOI: 10.1021/acs.jchemed.9b00249
- The Purple Flask: A Novel Reformulation of the Blue Bottle Reaction Richard B. Weinberg, J. Chem. Educ. 2020, 97, 1, 159-161 DOI: 10.1021/acs.jchemed.9b00627
- Stepwise Approach to Hess's Law Using Household Desiccants: A Laboratory Learning Program for High School Chemistry Courses Satoki Kodani, Masahiro Fukuda, Yoji Tsuboi, Nobuyoshi Koga, J. Chem. Educ. 2020, 97, 1, 166-171 DOI: 10.1021/acs.jchemed.9b00492
- Teaching Electrochemistry with Common Objects: Electrocatalytic Hydrogenation of Acetol with U.S. Coins Chun Ho Lam, James E. Jackson, J. Chem. Educ. 2020, 97, 1, 172-177 DOI: 10.1021/acs.jchemed.9b00431
- 3D-Printed Microfluidics for Hands-On Undergraduate Laboratory Experiments Matthew T. Vangunten, Uriah J. Walker, Han G. Do, Kyle N. Knust, J. Chem. Educ. 2020, 97, 1, 178-183 DOI: 10.1021/acs.jchemed.9b00620
- Quick and Easy Electroless Deposition and Alkanethiol Treatment To Form a Superhydrophobic Surface Fabian Dauzvardis, Alexander Knapp, Kaung Nan Dar Shein, George Lisensky, J. Chem. Educ. 2020, 97, 1, 184-189 DOI: 10.1021/acs.jchemed.9b00639
- Basics of Fourier Transform Applied to NMR Spectroscopy: An Interactive Open-Source Web Application Yannick J. Esvan, Wael Zeinyeh, J. Chem. Educ. 2020, 97, 1, 263-264 DOI: 10.1021/acs.jchemed.9b00502

## 2019

- décembre
  - Can Chemistry Be a Central Science without Systems Thinking? Peter G. Mahaffy, Felix M. Ho, Julie A. Haak, Edward J. Brush, J. Chem. Educ. 2019, 96(12), 2679-2681 DOI: 10.1021/acs.jchemed.9b00991
  - Using a Systems Thinking Approach and a Scratch Computer Program To Improve Students' Understanding of the Brønsted–Lowry Acid–Base Model Sungki Kim, Hee Choi, Seoung-Hey Paik, J. Chem. Educ. 2019, 96(12), 2926-2936 DOI: 10.1021/acs.jchemed.9b00210
  - Phosphate Recovery as a Topic for Practical and Interdisciplinary Chemistry Learning Christian Zowada, Antje Siol, Ozcan Gulacar, Ingo Eilks, J. Chem. Educ. 2019, 96(12), 2952-2958 DOI: 10.1021/acs.jchemed.8b01000
  - Situating Sustainable Development within Secondary Chemistry Education via Systems Thinking: A Depth Study Approach Andrew C. Eaton, Seamus Delaney, Madeleine Schultz, J. Chem. Educ. 2019, 96(12), 2968-2974 DOI: 10.1021/acs.jchemed.9b00266
  - Exploring Real-World Applications of Electrochemistry by Constructing a Rechargeable Lithium-Ion Battery Franklin D. R. Maharaj, Wanxin Wu, Yiwei Zhou, Logan T. Schwanz, Michael P. Marshak, J. Chem. Educ. 2019, 96(12), 3014-3017 DOI: 10.1021/acs.jchemed.9b00328
- novembre
  - Design and Evaluation of Integrated Instructions in Secondary-Level Chemistry Practical Work David J. Paterson, J. Chem. Educ. 2019, 96, 11, 2510-2517, DOI: 10.1021/acs.jchemed.9b00194
  - Connecting Organic Chemistry Concepts with Real-World Contexts by Creating Infographics Devki Kothari, Ariana O. Hall, Carol Ann Castañeda, Anne J. McNeil, J. Chem. Educ. 2019, 96, 11, 2524-2527 DOI: 10.1021/acs.jchemed.9b00605
  - Ion Hunters: Playing a Game To Practice Identifying Anions and Cations and Writing Their Names and Formulas Nisa Yenikalaycı, Dilek Çelikler, Zeynep Aksan, J. Chem. Educ. 2019, 96, 11, 2532-2534, DOI: 10.1021/acs.jchemed.8b00732
  - PyMOL as an Instructional Tool To Represent and Manipulate the Myoglobin/Hemoglobin

Protein System Jennifer E. Lineback, Ariane L. Jansma, J. Chem. Educ. 2019, 96, 11, 2540-2544 DOI: 10.1021/acs.jchemed.9b00143
    - Incorporating Chemical Structure Drawing Software throughout the Organic Laboratory Curriculum Noel M. Paul, Ryan J. Yoder, Christopher S. Callam, J. Chem. Educ. 2019, 96, 11, 2638-2642, DOI: 10.1021/acs.jchemed.9b00010
    - Low-Cost Turbidimeter, Colorimeter, and Nephelometer for the Student Laboratory Marin Kovačić, Danijela Ašperger, J. Chem. Educ. 2019, 96, 11, 2649-2654, DOI: 10.1021/acs.jchemed.9b00252
    - Mass-Based Approach to the Determination of the Henry's Law Constant for CO2(g) Using a Diet Carbonated Beverage Frazier Nyasulu, Rebecca Barlag, Lauren McMills, Phyllis Arthasery, J. Chem. Educ. 2019, 96, 11, 2661-2664, DOI: 10.1021/acs.jchemed.9b00082
- octobre
    - Developing Student Process Skills in a General Chemistry Laboratory Gil Reynders, Erica Suh, Renée S. Cole, Rebecca L. Sansom, J. Chem. Educ. 2019, 96(10), 2109-2119 DOI: 10.1021/acs.jchemed.9b00441
    - Assessing College Students' Risk Perceptions of Hazards in Chemistry Laboratories Clara Rosalía Álvarez-Chávez, Luz S. Marín, Karla Perez-Gamez, Mariona Portell, Luis Velazquez, Francisca Munoz-Osuna, J. Chem. Educ. 2019, 96(10), 2120-2131 DOI: 10.1021/acs.jchemed.8b00891
    - Influence of Exam Blueprint Distribution on Student Perceptions and Performance in an Inorganic Chemistry Course Karin J. Young, Sarah Lashley, Sarah Murray, J. Chem. Educ. 2019, 96(10), 2141-2148 DOI: 10.1021/acs.jchemed.8b01034
    - A Complementary Laboratory Exercise: Introducing Molecular Structure–Function Topics to Undergraduate Nursing Health Professions Students Angela L. Mahaffey, J. Chem. Educ. 2019, 96(10), 2188-2193 DOI: 10.1021/acs.jchemed.9b00388
    - Radioactive World: An Outreach Activity for Nuclear Chemistry Sierra C. Marker, Chilaluck C. Konkankit, Mark C. Walsh, Daniel R. Lorey II, Justin J. Wilson, J. Chem. Educ. 2019, 96(10), 2238-2246 DOI: 10.1021/acs.jchemed.9b00242
    - Simple and Versatile Protocol for Preparing Self-Healing Poly(vinyl alcohol) Hydrogels Rylie K. Morris, Abby P. Hilker, Taylor M. Mattice, Shane M. Donovan, Michael T. Wentzel, Patrick H. Willoughby, J. Chem. Educ. 2019, 96(10), 2247-2252 DOI: 10.1021/acs.jchemed.9b00161
    - It's All Relative! Engaging Nursing and Exercise Science Students in Chemical Education Using Medical Case Studies Angela L. Mahaffey, J. Chem. Educ., 2019, 96(10), 2253-2260 DOI: 10.1021/acs.jchemed.9b00329
    - A Convenient, Effective, and Safer Flame Demonstration John P. Canal, Rajendra Dev Sharma, Hamel N. Tailor, J. Chem. Educ. 2019, 96(10), 2261-2265 DOI: 10.1021/acs.jchemed.8b01010
    - Hands-On Experiment To Verify Consistency from Bulk Density to Atomic and Ionic Radii with Lumps of Metals and Ionic Compounds Seong Kyun Kim, Seoung-Hey Paik, J. Chem. Educ. 2019, 96(10), 2271-2278 DOI: 10.1021/acs.jchemed.8b00963
    - Design and Construction of a Low-Cost Arduino-Based pH Sensor for the Visually Impaired Using Universal pH Paper Abubaker Qutieshat, Rayhana Aouididi, Rayan Arfaoui, J. Chem. Educ. 2019, 96(10), 2333-2338 DOI: 10.1021/acs.jchemed.9b00450
- septembre
    - Development of the Enthalpy and Entropy in Dissolution and Precipitation Inventory Timothy N. Abell, Stacey Lowery Bretz, J. Chem. Educ.2019, 96(9), 1804-1812, DOI: 10.1021/acs.jchemed.9b00186
    - Drawing for Assessing Learning Outcomes in Chemistry Stephanie A. C. Ryan, Mike Stieff, J. Chem. Educ. 2019, 96(9), 1813-1820 DOI: 10.1021/acs.jchemed.9b00361
    - Investigating Student Understanding of London Dispersion Forces: A Longitudinal Study

Keenan Noyes, Melanie M. Cooper, J. Chem. Educ. 2019, 96(9), 1821-1832 DOI: 10.1021/acs.jchemed.9b00455
    - Michaelis–Menten Graphs, Lineweaver–Burk Plots, and Reaction Schemes: Investigating Introductory Biochemistry Students' Conceptions of Representations in Enzyme Kinetics Jon-Marc G. Rodriguez, Nicholas P. Hux, Sven J. Philips, Marcy H. Towns, J. Chem. Educ. 2019, 96(9), 1833-1845 DOI: 10.1021/acs.jchemed.9b00396
    - Organic Chemistry, Life, the Universe and Everything (OCLUE): A Transformed Organic Chemistry Curriculum Melanie M. Cooper, Ryan L. Stowe, Olivia M. Crandell, Michael W. Klymkowsky, J. Chem. Educ. 2019, 96(9), 1858-1872 DOI: 10.1021/acs.jchemed.9b00401
    - Introducing Students to Fundamental Chemistry Concepts and Basic Research through a Chemistry of Fashion Course for Nonscience Majors Karen A. Tallman, J. Chem. Educ. 2019, 96(9), 1906-1913 DOI: 10.1021/acs.jchemed.8b00826
    - Rumford's Experimental Challenge to Caloric Theory: "Big Science" 18th-Century Style with Important Results for Chemistry and Physics Frederic E. Schubert, J. Chem. Educ. 2019, 96(9), 1955-1960 DOI: 10.1021/acs.jchemed.9b00039
    - Chemical Exploration with Virtual Reality in Organic Teaching Laboratories Jonathon B. Ferrell, Joseph P. Campbell, Dillon R. McCarthy, Kyle T. McKay, Magenta Hensinger, Ramya Srinivasan, Xiaochuan Zhao, Alexander Wurthmann, Jianing Li, Severin T. Schneebeli, J. Chem. Educ. 2019, 96(9), 1961-1966 DOI: 10.1021/acs.jchemed.9b00036
    - Custom-Printed 3D Models for Teaching Molecular Symmetry Brian K. Niece, J. Chem. Educ. 2019, 96(9), 2059-2062 DOI: 10.1021/acs.jchemed.9b00053
- Août
    - Metacognitive Training in Chemistry Tutor Sessions Increases First Year Students' Self-Efficacy Kate J. Graham, Catherine M. Bohn-Gettler, Annette F. Raigoza, J. Chem. Educ. 2019, 96(8), 1539-1547 DOI: 10.1021/acs.jchemed.9b00170
    - Investigating Student Understanding of Rate Constants: When is a Constant "Constant"? Kinsey Bain, Jon-Marc G. Rodriguez, Marcy H. Towns, J. Chem. Educ. 2019, 96(8), 1571-1577 DOI: 10.1021/acs.jchemed.9b00005
    - Polymers, Giant Molecules with Properties: An Entertaining Activity Introducing Polymers to Young Students Nejla B. Erdal, Minna Hakkarainen, Anders G. Blomqvist, J. Chem. Educ. 2019, 96(8), 1691-1695 DOI: 10.1021/acs.jchemed.8b00918
    - Polymer Processing Demonstrations Using PET Bottles Alfredo Luis M. L. Mateus, J. Chem. Educ. 2019, 96(8), 1696-1700 DOI: 10.1021/acs.jchemed.8b00890
    - An Acid–Base Battery with Oxygen Electrodes: A Laboratory Demonstration of Electrochemical Power Sources Guo-Ming Weng, Chi-Ying Vanessa Li, Kwong-Yu Chan, J. Chem. Educ. 2019, 96(8), 1701-1706, DOI: 10.1021/acs.jchemed.8b00901
    - Implementation of an Accessible Gas Chromatography Laboratory Experiment for High School Students Gannon P. Connor, Daniel Kim, Alexandra L. Nagelski, Emily O. Schmidt, Tori Hass-Mitchell, John T. Atwater, Sara A. Tridenti, Seungjung Sohn, Patrick L. Holland, J. Chem. Educ. 2019, 96(8), 1707-1713 DOI: 10.1021/acs.jchemed.8b00789
    - Bringing Nuance to Automated Exam and Classroom Response System Grading: A Tool for Rapid, Flexible, and Scalable Partial-Credit Scoring Tom P. Carberry, Philip S. Lukeman, Dustin J. Covell, J. Chem. Educ. 2019, 96(8), 1767-1772 DOI: 10.1021/acs.jchemed.8b01004
    - Simple and Economical Procedure To Assemble pH Glass Membrane Electrodes Used in Chemical Education Fang Yong, Qiuhong Zhu, Guohao Zhang, Guohong Tao, Song Qin, J. Chem. Educ. 2019, 96(8), 1773-1777 DOI: 10.1021/acs.jchemed.9b00254
- juillet
    - Improving Learning Outcomes in Secondary Chemistry with Visualization-Supported Inquiry Activities Mike Stieff, J. Chem. Educ. 2019, 96 (7), pp 1300-1307 DOI: 10.1021/acs.jchemed.9b00205

- Applying the Next Generation Science Standards to Current Chemistry Classrooms: How Lessons Measure Up and How to Respond Natalia M. Kellamis, Ellen J. Yezierski, J. Chem. Educ., 2019, 96 (7), pp 1308-1317 DOI: 10.1021/acs.jchemed.8b00840
- The Impact of Core-Idea Centered Instruction on High School Students' Understanding of Structure–Property Relationships Ryan L. Stowe, Deborah G. Herrington, Robert L. McKay, Melanie M. Cooper, J. Chem. Educ., 2019, 96 (7), pp 1327-1340 DOI: 10.1021/acs.jchemed.9b00111
- Reconstructing a School Chemistry Curriculum in the Era of Core Competencies: A Case from China Bing Wei, J. Chem. Educ., 2019, 96 (7), pp 1359-1366 DOI: 10.1021/acs.jchemed.9b00211
- Periodic Universe: A Teaching Model for Understanding the Periodic Table of the Elements Matthias Bierenstiel, Kathy Snow, J. Chem. Educ., 2019, 96 (7), pp 1367-1376 DOI: 10.1021/acs.jchemed.8b00740
- Making Science Accessible to Students with Visual Impairments: Insulation-Materials Investigation Aydin Kizilaslan, Mustafa Sozbilir, Seraceddin Levent Zorluoglu, J. Chem. Educ., 2019, 96 (7), pp 1383-1388 DOI: 10.1021/acs.jchemed.8b00772
- Systematic Procedure for Drawing Lewis Structures Based on Electron Pairing Priority and the Explicit Use of Donor Bonds: An Alternative to the Normal Procedure Which Can Be Pen and Paper Based or Automated on a PC in User Interactive 3D Patrick McArdle, J. Chem. Educ., 2019, 96 (7), pp 1412-1417 DOI: 10.1021/acs.jchemed.8b00868
- Chemistry Toy 1: An Approach to Quantify and Improve the Power of Scientific Observation Matthew F. Terra, Shaun D. Black, J. Chem. Educ., 2019, 96 (7), pp 1431-1437 DOI: 10.1021/acs.jchemed.8b00480
- Scrambled Eggs or How Eggshells Become Phosphates Diana Potes Vecini, Shirley C. Jofré, Florencia B. Pereyra Ríos, Javier Sartuqui, Paula Messina, M. Belén González, Melisa Saugo, Lorena Meier, Mónica F. Díaz, Andrés E. Ciolino, J. Chem. Educ., 2019, 96 (7), pp 1443-1448 DOI: 10.1021/acs.jchemed.8b00451
- Rethinking a Timeless Titration Experimental Setup through Automation and Open-Source Robotic Technology: Making Titration Accessible for Students of All Abilities Ronald Soong, Kyle Agmata Tina Doyle, Amy Jenne, Antonio Adamo, Andre J. Simpson, J. Chem. Educ., 2019, 96 (7), pp 1497-1501 DOI: 10.1021/acs.jchemed.9b00025
- Simple Glowmatography: Chromatographic Separation of Glow-Stick Dyes Using Chalk Thomas S. Kuntzleman, Kasey R. Bunker, Ashlee A. Bartlett, J. Chem. Educ., 2019, 96 (7), pp 1506-1509 DOI: 10.1021/acs.jchemed.8b00237
- Jigsaw: Using Cooperative Learning in Teaching Organic Functions Brenno R. M. Oliveira, André L. Vailati, Edinara Luiz, Fabrine G. Böll, Samuel R. Mendes, J. Chem. Educ., 2019, 96 (7), pp 1515-1518 DOI: 10.1021/acs.jchemed.8b00765
- Quantitative Analysis Using a Flatbed Scanner: Aspirin Quantification in Pharmaceutical Tablets Rodrigo Sens da Silva, Endler Marcel Borges,J. Chem. Educ., 2019, 96 (7), pp 1519-1526 DOI: 1021/acs.jchemed.8b00620
- A 3D-Printable Dual Beam Spectrophotometer with Multiplatform Smartphone Adaptor Ryan Bogucki, Mary Greggila, Paul Mallory, Jiansheng Feng, Kelly Siman, Banafsheh Khakipoor, Hunter King, Adam W. Smith, J. Chem. Educ., 2019, 96 (7), pp 1527-1531 DOI: 10.1021/acs.jchemed.8b00870

- juin
  - Introductory Chemistry Using the "Flipped" Environment: An Update Norbert J. Pienta, J. Chem. Educ., 2019, 96 (6), pp 1053-1054 DOI: 10.1021/acs.jchemed.9b00458
  - The Evaluation of a Hybrid, General Chemistry Laboratory Curriculum: Impact on Students' Cognitive, Affective, and Psychomotor Learning Kory M. Enneking, Graham R. Breitenstein, Amelia F. Coleman, James H. Reeves, Yishi Wang, Nathaniel P. Grove, J. Chem. Educ., 2019, 96 (6), pp 1058-1067 DOI: 10.1021/acs.jchemed.8b00637

    - Simplified Low-Cost Colorimetry for Education and Public Engagement J. O'Donoghue, J. Chem. Educ., 2019, 96 (6), pp 1136-1142 DOI: 10.1021/acs.jchemed.9b00301
    - Accurate, Photoresistor-Based, Student-Built Photometer and Its Application to the Forensic Analysis of Dyes Anna L. Adams-McNichol, Rayf C. Shiell, David A. Ellis, J. Chem. Educ., 2019, 96 (6), pp 1143-1151 DOI: 10.1021/acs.jchemed.8b00862
    - Electrochemistry with Simple Materials to Create Designs and Write Messages Thomas S. Kuntzleman, J. Chem. Educ., 2019, 96 (6), pp 1178-1181 DOI: 10.1021/acs.jchemed.9b00012
    - STEM Activities in Determining Stoichiometric Mole Ratios for Secondary-School Chemistry Teaching Patcharee Chonkaew, Boonnak Sukhummek, Chatree Faikhamta, J. Chem. Educ., 2019, 96 (6), pp 1182-1186 DOI: 10.1021/acs.jchemed.8b00985
    - BYOL: Bring Your Own Lime Hands-On Laboratory Experience Mikhail Kurushkin, Chantal Tracey, Maria Mikhaylenko, J. Chem. Educ., 2019, 96 (6), pp 1283-1286 DOI: 10.1021/acs.jchemed.8b00966
- mai
    - Visualizing Dissolution, Ion Mobility, and Precipitation through a Low-Cost, Rapid-Reaction Activity Introducing Microscale Precipitation Chemistry Bob Worley, Eric M. Villa, Jess M. Gunn, and Bruce Mattson, J. Chem. Educ., 2019, 96 (5), pp 951–954 DOI: 10.1021/acs.jchemed.8b00563
    - A Lab-Based Chemical Escape Room: Educational, Mobile, and Fun! Ran Peleg, Malka Yayon, Dvora Katchevich, Mor Moria-Shipony, and Ron Blonder, J. Chem. Educ., 2019, 96 (5), pp 955–960 DOI: 10.1021/acs.jchemed.8b00406
    - Development and Production of Interactive Videos for Teaching Chemical Techniques during Laboratory Sessions Sarah L. Cresswell, Wendy A. Loughlin, Mark J. Coster, and David M. Green, J. Chem. Educ., 2019, 96 (5), pp 1033–1036 DOI: 10.1021/acs.jchemed.8b00647
- avril
    - What Chemistry Teachers Should Know about the Revised International System of Units (Système International) Carmen J. Giunta, J. Chem. Educ., 2019, 96 (4), pp 613–617 DOI: 10.1021/acs.jchemed.8b00707
    - Introduction to Laboratory Safety for Graduate Students: An Active-Learning Endeavor David J. Hill, Olivia F. Williams, Danianne P. Mizzy, Therese F. Triumph, Catherine R. Brennan, Dawn C. Mason, and David S. Lawrence, J. Chem. Educ., 2019, 96 (4), pp 652–659 DOI: 10.1021/acs.jchemed.8b00774
    - Addressing Misconceptions Related to Mass–Matter Conservation and Bond Energetics with a Modified Gauss Accelerator Robert G. Gullion, Terry Gullion, Michelle Richards-Babb, and Mark Schraf, J. Chem. Educ., 2019, 96 (4), pp 734–738 DOI: 10.1021/acs.jchemed.8b00697
    - KinSim: A Research-Grade, User-Friendly, Visual Kinetics Simulator for Chemical-Kinetics and Environmental-Chemistry Teaching Zhe Peng and Jose L. Jimenez, J. Chem. Educ., 2019, 96 (4), pp 806–811 DOI: 10.1021/acs.jchemed.9b00033
    - Clock Reaction Revisited: Catalyzed Redox Substrate-Depletive Reactions Taweetham Limpanuparb, Chattarin Ruchawapol, and Dulyarat Sathainthammanee, J. Chem. Educ., 2019, 96 (4), pp 812–818 DOI: 10.1021/acs.jchemed.8b00547
- mars
    - Supporting the Growth and Impact of the Chemistry-Education-Research Community Deborah G. Herrington, Ryan D. Sweeder, Patrick L. Daubenmire, Christopher F. Bauer, Stacey Lowery Bretz, Diane M. Bunce, Justin H. Carmel, Renée Cole, Brittland K. DeKorver, Resa M. Kelly, Scott E. Lewis, Maria Oliver-Hoyo, Stephanie A. C. Ryan, Marilyne Stains, Marcy H. Towns, and Ellen J. Yezierski J. Chem. Educ., 2019, 96 (3), pp 393–397 ASAP DOI: 10.1021/acs.jchemed.8b00823 Publication Date (Web): February 8, 2019

- Undergraduate Chemistry Students' Conceptualization of Models in General Chemistry Katherine Lazenby, Charlie A. Rupp, Alexandra Brandriet, Kathryn Mauger-Sonnek, and Nicole M. Becker, J. Chem. Educ., 2019, 96 (3), pp 455–468 DOI: 10.1021/acs.jchemed.8b00813
- Macroscopic Observations of Dissolving, Insolubility, and Precipitation: General Chemistry and Physical Chemistry Students' Ideas about Entropy Changes and Spontaneity Timothy N. Abell and Stacey Lowery Bretz, J. Chem. Educ., 2019, 96 (3), pp 469–478 DOI: 10.1021/acs.jchemed.8b01007
- Is this Solution Pink Enough? A Smartphone Tutor to Resolve the Eternal Question in Phenolphthalein-Based Titration Balraj B. Rathod, Sahana Murthy, and Subhajit Bandyopadhyay, J. Chem. Educ., 2019, 96 (3), pp 486–494 DOI: 10.1021/acs.jchemed.8b00708
- Introducing Electron Probability Density to High School Students Using a Spiral Drawing Toy Mikhail Kurushkin and Chantal Tracey, J. Chem. Educ., 2019, 96 (3), pp 500–502 DOI: 10.1021/acs.jchemed.8b00391

- février
  - Evidence for the Importance of Laboratory Courses, editorial : Stacey Lowery Bretz, J. Chem. Educ., 2019, 96 (2), pp 193–195 DOI: 10.1021/acs.jchemed.8b00874
  - Characterizing Peer Review Comments and Revision from a Writing-to-Learn Assignment Focused on Lewis Structures S. A. Finkenstaedt-Quinn, E. P. Snyder-White, M. C. Connor, A. Ruggles Gere, and G. V. Shultz, J. Chem. Educ., 2019, 96 (2), pp 227–237 DOI: 10.1021/acs.jchemed.8b00711
  - Form versus Function: A Comparison of Lewis Structure Drawing Tools and the Extraneous Cognitive Load They Induce Patrick L. Duffy, Kory M. Enneking, Tyler W. Gampp, Khatijah Amir Hakim, Amelia F. Coleman, Krista V. Laforest, Dylan M. Paulson, Erik T. Paulson, Justin D. Shepard, Jessica M. Tiettmeyer†, Kristina M. Mazzarone‖, and Nathaniel P. Grove, J. Chem. Educ., 2019, 96 (2), pp 238–247 DOI: 10.1021/acs.jchemed.8b00574
  - Escape ClassRoom: Can You Solve a Crime Using the Analytical Process? Marta Ferreiro-González, Antonio Amores-Arrocha, Estrella Espada-Bellido, María José Aliaño-Gonzalez, Mercedes Vázquez-Espinosa, Ana V. González-de-Peredo, Pau Sancho-Galán, José Ángel Álvarez-Saura, Gerardo F. Barbero , and Cristina Cejudo-Bastante, J. Chem. Educ., 2019, 96 (2), pp 267–273 DOI: 10.1021/acs.jchemed.8b00601
  - Exploring Acid–Base Chemistry by Making and Monitoring Red-Cabbage Sauerkraut: A Fresh Twist on the Classic Cabbage-Indicator Experiment, Jacqueline L. Linder, Sumeja Aljic, Hamzah M. Shroof, Zachary B. Di Giusto, James M. Franklin, Shane Keaney, Christopher P. Le, Olivia K. George, Andrew M. Castaneda, Lloyd S. Fisher, Virginia A. Young, and Adam M. Kiefer, J. Chem. Educ., 2019, 96 (2), pp 304–307 DOI: 10.1021/acs.jchemed.8b00767
  - Applying Chemistry Knowledge to Code, Construct, and Demonstrate an Arduino–Carbon Dioxide Fountain Seong-Joo Kang , Hye-Won Yeo, and Jihyun Yoon, J. Chem. Educ., 2019, 96 (2), pp 313–316 DOI: 10.1021/acs.jchemed.8b00663
  - Multidisciplinary Learning: Redox Chemistry and Pigment History Marcie B. Wiggins, Emma Heath, and Jocelyn Alcántara-García, J. Chem. Educ., 2019, 96 (2), pp 317–322 DOI: 10.1021/acs.jchemed.8b00358
  - Detecting Microplastics in Soil and Sediment in an Undergraduate Environmental Chemistry Laboratory Experiment That Promotes Skill Building and Encourages Environmental Awareness Laura Rowe, Maria Kubalewski, Robert Clark, Emily Statza, Thomas Goyne, Katie Leach, and Julie Peller, J. Chem. Educ., 2019, 96 (2), pp 323–328 DOI: 10.1021/acs.jchemed.8b00392
  - Listening to pH Samuel C. Costa and Julio C. B. Fernandes, J. Chem. Educ., 2019, 96 (2), pp 372–376 DOI: 10.1021/acs.jchemed.8b00641

    - Measuring CO2 with an Arduino: Creating a Low-Cost, Pocket-Sized Device with Flexible Applications That Yields Benefits for Students and Schools Hernan Pino, Vanesa Pastor, Carme Grimalt-Álvaro, and Víctor López, J. Chem. Educ., 2019, 96 (2), pp 377–381 DOI: 10.1021/acs.jchemed.8b00473
    - A Digital Periodic Table That Instructors Can Use in the Classroom To Highlight Elements and Illustrate Periodic Trends Matthew E. Lopper, J. Chem. Educ., 2019, 96 (2), pp 387–389 DOI: 10.1021/acs.jchemed.8b00616
- janvier
    - Chemistry Unbound: Designing a New Four-Year Undergraduate Curriculum Tracy L. McGill, Leah C. Williams, Douglas R. Mulford, Simon B. Blakey, Robert J. Harris, James T. Kindt, David G. Lynn, Patricia A. Marsteller, Frank E. McDonald, and Nichole L. Powell, J. Chem. Educ., 2019, 96 (1), pp 35–46 DOI: 10.1021/acs.jchemed.8b00585 (open access article)
    - VSEPR-Plus: Correct Molecular and Electronic Structures Can Lead to Better Student Conceptual Models Brian J. Esselman and Stephen B. Block, J. Chem. Educ., 2019, 96 (1), pp 75–81 DOI: 10.1021/acs.jchemed.8b00316
    - Teaching Boyle’s Law and Charles’ Law through Experiments that Use Novel, Inexpensive Equipment Yielding Accurate Results Taweetham Limpanuparb, Siradanai Kanithasevi, Maytouch Lojanarungsiri, and Puh Pakwilaikiat, J. Chem. Educ., 2019, 96 (1), pp 169–174 DOI: 10.1021/acs.jchemed.8b00460

## 2018

- décembre
    - College Students Teaching Chemistry through Outreach: Conceptual Understanding of the Elephant Toothpaste Reaction and Making Liquid Nitrogen Ice Cream Justin M. Pratt and Ellen J. Yezierski, , J. Chem. Educ., 2018, 95 (12), pp 2091–2102 DOI: 10.1021/acs.jchemed.8b00688
    - Using Symbolic and Graphical Forms To Analyze Students’ Mathematical Reasoning in Chemical Kinetics Jon-Marc G. Rodriguez, Stephanie Santos-Diaz, Kinsey Bain, and Marcy H. Towns, J. Chem. Educ., 2018, 95 (12), pp 2114–2125 DOI: 10.1021/acs.jchemed.8b00584
    - A Nonlinear, “Sticky” Web of Study for Chemistry: A Graphical Curricular Tool for Teaching and Learning Chemistry Built upon the Interconnection of Core Chemical Principles James D. Martin and Katherine A. Nock, J. Chem. Educ., 2018, 95 (12), pp 2134–2140 DOI: 10.1021/acs.jchemed.7b00878
        - *N.B.* : attention de considérer aussi les critiques à propos de Carol Dweck
- novembre
    - Importance of Understanding Fundamental Chemical Mechanisms Vicente Talanquer, J. Chem. Educ., 2018, 95 (11), pp 1905–1911 DOI: 10.1021/acs.jchemed.8b00508
    - What Prospective Chemistry Teachers Know about Chemistry: An Analysis of Praxis Chemistry Subject Assessment Category Performance Lisa Shah, Jeremy Schneider, Rebekah Fallin, Kimberly Linenberger Cortes, Herman E. Ray, and Gregory T. Rushton, J. Chem. Educ., 2018, 95 (11), pp 1912–1921 DOI: 10.1021/acs.jchemed.8b00365
    - Electronic Laboratory Notebooks Allow for Modifications in a General, Organic, and Biochemistry Chemistry Laboratory To Increase Authenticity of the Student Experience Amber J. Dood, Lisa M. Johnson, and Justin M. Shorb, J. Chem. Educ., 2018, 95 (11), pp 1922–1928 DOI: 10.1021/acs.jchemed.8b00140
    - Investigating NOx Concentrations on an Urban University Campus Using Passive Air Samplers and UV–Vis Spectroscopy Cole M. Crosby, Richard A. Maldonado, Ahyun Hong,

Ryan L. Caylor, Kristine L. Kuhn, and Matthew E. Wise, J. Chem. Educ., 2018, 95 (11), pp 2023–2027 DOI: 10.1021/acs.jchemed.8b00175

- octobre
  - Adapting to the Large-Scale Advanced Placement Chemistry Reform: An Examination of Teachers' Challenges and Instructional Practices Christian Fischer, Arthur Eisenkraft, Barry Fishman, Nicolas Hübner, and Frances Lawrenz, J. Chem. Educ., 2018, 95 (10), pp 1701–1710 DOI: 10.1021/acs.jchemed.8b00151
  - Impact of an Atoms-First Approach on Student Outcomes in a Two-Semester General Chemistry Course George Chitiyo, Darek W. Potter, and Chad E. Rezsnyak, J. Chem. Educ., 2018, 95 (10), pp 1711–1716 DOI: 10.1021/acs.jchemed.8b00195
  - Chemistry Demonstrations and Visual Attention: Does the Setup Matter? Evidence from a Double-Blinded Eye-Tracking Study Andreas Nehring and Sebastian Busch, J. Chem. Educ., 2018, 95 (10), pp 1724–1735 DOI: 10.1021/acs.jchemed.8b00133
  - Playing with Fire: Chemical Safety Expertise Required Samuella B. Sigmann, J. Chem. Educ., 2018, 95 (10), pp 1736–1746 DOI: 10.1021/acs.jchemed.8b00152
  - From Water to H2O: Using the Human Dimension of Science To Teach the Nature of Science José Luis Aparicio and María P. Elizalde, J. Chem. Educ., 2018, 95 (10), pp 1763–1770 DOI: 10.1021/acs.jchemed.8b00060
  - Incorporating Stories of Sedatives, Spoiled Sweet Clover Hay, and Plants from the Amazon Rainforest into a Pharmaceutical Chemistry Course To Engage Students and Introduce Drug Design Strategies Eneko Larrañeta, J. Chem. Educ., 2018, 95 (10), pp 1778–1786 DOI: 10.1021/acs.jchemed.8b00063
  - How Batteries Store and Release Energy: Explaining Basic Electrochemistry Klaus Schmidt-Rohr, J. Chem. Educ., 2018, 95 (10), pp 1801–1810 DOI: 10.1021/acs.jchemed.8b00479
  - Electromotive Force versus Electrical Potential Difference: Approaching (but Not Yet at) Equilibrium Leandro da Silva Rodrigues, Jones de Andrade, and Luiz H. S. Gasparotto, J. Chem. Educ., 2018, 95 (10), pp 1811–1815 DOI: 10.1021/acs.jchemed.8b00249
  - Buffers in Context: Baby Wipes As a Buffer System Jon-Marc G. Rodriguez, Sarah Hensiek, Jeanne R. Meyer, Cynthia J. Harwood, and Marcy H. Towns, J. Chem. Educ., 2018, 95 (10), pp 1816–1820 DOI: 10.1021/acs.jchemed.8b00378
  - Comparative Analysis of Fuel Composition and Physical Properties of Biodiesel, Diesel, Kerosene, and Jet Fuel Timm A. Knoerzer, Elise M. Hill, Todd A. Davis, Scott T. Iacono, Jane E. Johnson, and Gary J. Balaich, J. Chem. Educ., 2018, 95 (10), pp 1821–1826 DOI: 10.1021/acs.jchemed.8b00216
- septembre
  - Analysis and Identification of Major Organic Acids in Wine and Fruit Juices by Paper Chromatography Dulani Samarasekara, Courtney Hill, and Deb Mlsna, J. Chem. Educ., 2018, 95 (9), pp 1621–1625 DOI: 10.1021/acs.jchemed.8b00129
  - Approximate Relations in pH Calculations for Aqueous Solutions of Extremely Weak Acids: A Topic for Problem-Based Learning Renata Bellová, Danica Melicherčíková, and Peter Tomčík, J. Chem. Educ., 2018, 95 (9), pp 1548–1553 DOI: 10.1021/acs.jchemed.8b00086
  - Demonstrating CO2 Sequestration Using Olivine and Carbonated Beverages with Secondary School Students To Investigate pH and Electrical Conductivity Concepts Johan A. Linthorst and Johanna van der Wal-Veuger, J. Chem. Educ., 2018, 95 (9), pp 1612–1614 DOI: 10.1021/acs.jchemed.7b00680
  - Easy Illustration of Salt Damage in Stone Francesco Caruso, Timothy Wangler, and Robert J. Flatt, J. Chem. Educ., 2018, 95 (9), pp 1615–1620 DOI: 10.1021/acs.jchemed.7b00815
- août
  - Pedagogical Content Knowledge of Chemical Kinetics: Experiment Selection Criteria To Address Students' Intuitive Conceptions Ainoa Marzabal, Virginia Delgado, Patricia

Moreira, Lorena Barrientos, and Jeannette Moreno, J. Chem. Educ., 2018, 95 (8), pp 1245–1249 DOI: 10.1021/acs.jchemed.8b00296
    - Whether and How Authentic Contexts Using a Virtual Chemistry Lab Support Learning Jodi L. Davenport, Anna N. Rafferty, and David J. Yaron, J. Chem. Educ., 2018, 95 (8), pp 1250–1259 DOI: 10.1021/acs.jchemed.8b00048
    - Using Writing Assignments as an Intervention to Strengthen Acid–Base Skills Charles T. Cox, Jr., Jennifer Schwartz Poehlmann, Caitlin Ortega, and Julio C. Lopez, J. Chem. Educ., 2018, 95 (8), pp 1276–1283 DOI: 10.1021/acs.jchemed.8b00018
    - Chemistry of Candy: A Sweet Approach to Teaching Nonscience Majors Jennifer Logan Bayline, Halie M. Tucci, David W. Miller, Kaitlin D. Roderick, and Patricia A. Brletic, J. Chem. Educ., 2018, 95 (8), pp 1307–1315 DOI: 10.1021/acs.jchemed.7b00739
    - Sweet, Sweet Science: Addressing the Gender Gap in STEM Disciplines through a One-Day High School Program in Sugar Chemistry Mindy Levine and Dana J. DiScenza, J. Chem. Educ., 2018, 95 (8), pp 1316–1322 DOI: 10.1021/acs.jchemed.7b00900
    - Writing Prompts Help Improve Expression of Conceptual Understanding in Chemistry Talitha Visser, T. Maaswinkel, F. Coenders, and S. McKenney, J. Chem. Educ., 2018, 95 (8), pp 1331–1335 DOI: 10.1021/acs.jchemed.7b00798
    - Ancient Alchemy in the Classroom: A Honey-Based, Deflagrating Pyrotechnic A. V. Wolfenden, N. L. kilah, J. Chem. Educ., 2018, 95 (8), pp 1350–1353 DOI: 10.1021/acs.jchemed.7b00978
- juillet
    - Identifying the Scope of Safety Issues and Challenges to Safety Management in Swedish Middle School and High School Chemistry Education Linda Schenk, Ivan A. Taher, and Mattias Öberg, J. Chem. Educ., 2018, 95 (7), pp 1132–1139 DOI: 10.1021/acs.jchemed.8b00054
    - Tap It Fast! Playing a Molecular Symmetry Game for Practice and Formative Assessment of Students' Understanding of Symmetry Concepts Ricardo Dagnoni Huelsmann, Andrei Felipe Vailati, Lucas Ribeiro de Laia, Patrícia Salvador Tessaro, and Fernando Roberto Xavier, J. Chem. Educ., 2018, 95 (7), pp 1151–1155 DOI: 10.1021/acs.jchemed.7b00849
    - Cost-Effective Wireless Microcontroller for Internet Connectivity of Open-Source Chemical Devices Conan Mercer and Dónal Leech, J. Chem. Educ., 2018, 95 (7), pp 1221–1225 DOI: 10.1021/acs.jchemed.8b00200
- juin
    - The InChI Code Paul J. Karol, J. Chem. Educ., 2018, 95 (6), pp 911–912 DOI: 10.1021/acs.jchemed.8b00090
    - A Single Reaction Thread Ties Multiple Core Concepts in an Introductory Chemistry Course Meredith H. Barbee, Robert G. Carden, Julia H. R. Johnson, Cameron L. Brown , Dorian A. Canelas, and Stephen L. Craig, J. Chem. Educ., 2018, 95 (6), pp 939–946 DOI: 10.1021/acs.jchemed.7b00977
    - Expanding the Educational Toolset for Chemistry Outreach: Providing a Chemical View of Climate Change through Hands-On Activities and Demonstrations Supplemented with TED-Ed Videos Solaire A. Finkenstaedt-Quinn, Natalie V. Hudson-Smith, Matthew J. Styles, Michael K. Maudal, Adam R. Juelfs, and Christy L. Haynes, J. Chem. Educ., 2018, 95 (6), pp 985–990 DOI: 10.1021/acs.jchemed.7b00948
    - Prediction! The VSEPR Game: Using Cards and Molecular Model Building To Actively Enhance Students' Understanding of Molecular Geometry Erlina, Chris Cane, and Dylan P. Williams, J. Chem. Educ., 2018, 95 (6), pp 991–995 DOI: 10.1021/acs.jchemed.7b00687
    - Escape Classroom: The Leblanc Process—An Educational "Escape Game" Nicolas Dietrich, J. Chem. Educ., 2018, 95 (6), pp 996–999 DOI: 10.1021/acs.jchemed.7b00690
    - Unexpected Discovery: A Guided-Inquiry Experiment on the Reaction Kinetics of Zinc with Sulfuric Acid Martin Rusek, Pavel Beneš, and John Carroll, J. Chem. Educ., 2018, 95 (6), pp

1018–1021 DOI: 10.1021/acs.jchemed.7b00110
    - Mobile Augmented Reality Assisted Chemical Education: Insights from Elements 4D Shuxia Yang, Bing Mei, and Xiaoyu Yue, J. Chem. Educ., 2018, 95 (6), pp 1060–1062 DOI: 10.1021/acs.jchemed.8b00017
    - Continuous Flow Science in an Undergraduate Teaching Laboratory: Bleach-Mediated Oxidation in a Biphasic System Vanessa Kairouz and Shawn K. Collins, J. Chem. Educ., 2018, 95 (6), pp 1069–1072 DOI: 10.1021/acs.jchemed.7b00412
- mai
    - Developing High School Students' Self-Efficacy and Perceptions about Inquiry and Laboratory Skills through Argument-Driven Inquiry Guluzar Eymur, J. Chem. Educ., 2018, 95 (5), pp 709–715 DOI: 10.1021/acs.jchemed.7b00934
    - Zero-Order Chemical Kinetics as a Context To Investigate Student Understanding of Catalysts and Half-Life Kinsey Bain, Jon-Marc G. Rodriguez, and Marcy H. Towns, J. Chem. Educ., 2018, 95 (5), pp 716–725 DOI: 10.1021/acs.jchemed.7b00974
    - MOL: Developing a European-Style Board Game To Teach Organic Chemistry Eduardo Triboni and Gabriel Weber, J. Chem. Educ., 2018, 95 (5), pp 791–803 DOI: 10.1021/acs.jchemed.7b00408
    - Measuring Yeast Fermentation Kinetics with a Homemade Water Displacement Volumetric Gasometer Richard B. Weinberg, J. Chem. Educ., 2018, 95 (5), pp 828–832 DOI: 10.1021/acs.jchemed.7b00043
    - Teaching Electrochemistry in the General Chemistry Laboratory through Corrosion Exercises Richard W. Sanders, Gregory L. Crettol, Joseph D. Brown, Patrick T. Plummer, Tara M. Schendorf, Alex Oliphant, Susan B. Swithenbank, Robert F. Ferrante, and Joshua P. Gray, J. Chem. Educ., 2018, 95 (5), pp 842–846 DOI: 10.1021/acs.jchemed.7b00416
- avril
    - Dissolving Salts in Water: Students' Particulate Explanations of Temperature Changes Timothy N. Abell and Stacey Lowery Bretz, J. Chem. Educ., 2018, 95 (4), pp 504–511 DOI: 10.1021/acs.jchemed.7b00845
    - Applying Le Châtelier's Principle To Model Strong Acid–Strong Base Titration Philippe H. Mercier, J. Chem. Educ., 2018, 95 (4), pp 521–527 DOI: 10.1021/acs.jchemed.7b00575
    - Exploring the Mysterious Substances, X and Y: Challenging Students' Thinking on Acid–Base Chemistry and Chemical Equilibrium Ingo Eilks, Ozcan Gulacar, and Jose Sandoval, J. Chem. Educ., 2018, 95 (4), pp 601–604 DOI: 10.1021/acs.jchemed.7b00404
    - Acid–Base Behavior of 100 Element Oxides: Visual and Mathematical Representations Mikhail Kurushkin and Dmitry Kurushkin, J. Chem. Educ., 2018, 95 (4), pp 678–681 DOI: 10.1021/acs.jchemed.7b00576
    - Recovery of Silver Nitrate from Silver Chloride Waste James von Dollen, Sofia Oliva, Sarah Max, and Jennifer Esbenshade, J. Chem. Educ., 2018, 95 (4), pp 682–685 DOI: 10.1021/acs.jchemed.7b00713
- mars
    - Making Sense of Phenomena from Sequential Images versus Illustrated Text Karina C. Scalco , Vicente Talanquer , Keila B. Kiill, and Marcia R. Cordeiro J. Chem. Educ., 2018, 95 (3), pp 347–354 DOI: 10.1021/acs.jchemed.7b00716
    - Discovering the Chemical Elements in Food Antonio Joaquín Franco-Mariscal J. Chem. Educ., 2018, 95 (3), pp 403–409 DOI: 10.1021/acs.jchemed.7b00218
    - Chemical Pursuit: A Modified Trivia Board Game Blakely M. Adair and Lyle V. McAfee, J. Chem. Educ., 2018, 95 (3), pp 416–418 DOI: 10.1021/acs.jchemed.6b00946
    - Demonstrations of Magnetism and Oxidation by Combustion of Iron Supplement Tablets Max J. Palmer, Keri A. Martinez, Mayuresh G. Gadgil, and Dean J. Campbell J. Chem. Educ., 2018, 95 (3), pp 423–427 DOI: 10.1021/acs.jchemed.7b00475
- février

    - Problem-Based Approach to Teaching Advanced Chemistry Laboratories and Developing Students' Critical Thinking Skills Joseph G. Quattrucci, J. Chem. Educ., 2018, 95 (2), pp 259–266 DOI: 10.1021/acs.jchemed.7b00558
    - Lab-on-a-Chip: Frontier Science in the Classroom Jan Jaap Wietsma, Jan T. van der Veen, Wilfred Buesink, Albert van den Berg, and Mathieu Odijk, J. Chem. Educ., 2018, 95 (2), pp 267–275 DOI: 10.1021/acs.jchemed.7b00506
    - The People Periodic Table: A Framework for Engaging Introductory Chemistry Students Adam Hoffman and Mark Hennessy, J. Chem. Educ., 2018, 95 (2), pp 281–285 DOI: 10.1021/acs.jchemed.7b00226
    - Open-Source Low-Cost Wireless Potentiometric Instrument for pH Determination Experiments Hao Jin, Yiheng Qin, Si Pan, Arif U. Alam, Shurong Dong, Raja Ghosh , and M. Jamal Deen, J. Chem. Educ., 2018, 95 (2), pp 326–330 DOI: 10.1021/acs.jchemed.7b00479
- janvier
    - Development of the Flame Test Concept Inventory: Measuring Student Thinking about Atomic Emission Stacey Lowery Bretz and Ana Vasquez Murata Mayo, J. Chem. Educ., 2018, 95 (1), pp 17–27 DOI: 10.1021/acs.jchemed.7b00594
    - Analyzing General Chemistry Texts' Treatment of Rates of Change Concepts in Reaction Kinetics Reveals Missing Conceptual Links Sherry Seethaler, John Czworkowski, and Lynda Wynn, J. Chem. Educ., 2018, 95 (1), pp 28–36 DOI: 10.1021/acs.jchemed.7b00238
    - Geometrical Description of Chemical Equilibrium and Le Châtelier's Principle: Two-Component Systems Igor Novak, J. Chem. Educ., 2018, 95 (1), pp 84–87 DOI: 10.1021/acs.jchemed.7b00665
    - A Simplified Method for the 3D Printing of Molecular Models for Chemical Education Oliver A. H. Jones and Michelle J. S. Spencer, J. Chem. Educ., 2018, 95 (1), pp 88–96 DOI: 10.1021/acs.jchemed.7b00533
    - MolPrint3D: Enhanced 3D Printing of Ball-and-Stick Molecular Models Paul J. Paukstelis, J. Chem. Educ., 2018, 95 (1), pp 169–172 DOI: 10.1021/acs.jchemed.7b00549
    - Demonstrating Principles of Spectrophotometry by Constructing a Simple, Low-Cost, Functional Spectrophotometer Utilizing the Light Sensor on a Smartphone Bill S. Hosker, J. Chem. Educ., 2018, 95 (1), pp 178–181 DOI: 10.1021/acs.jchemed.7b00548

## 2017

- décembre
    - Concept Inventories: Predicting the Wrong Answer May Boost Performance Vicente Talanquer, Journal of Chemical Education 2017 94 (12), 1805-1810 DOI: 10.1021/acs.jchemed.7b00427
    - Comparing Student Performance Using Computer and Paper-Based Tests: Results from Two Studies in General Chemistry Anna A. Prisacari, Thomas A. Holme, and Jared Danielson, Journal of Chemical Education 2017 94 (12), 1822-1830 DOI: 10.1021/acs.jchemed.7b00274
    - Reforming a Large Foundational Course: Successes and Challenges Vicente Talanquer and John Pollard, Journal of Chemical Education 2017 94 (12), 1844-1851 DOI: 10.1021/acs.jchemed.7b00397 **undergraduate**
    - Practicing What We Preach: Assessing "Critical Thinking" in Organic Chemistry Ryan L. Stowe and Melanie M. Cooper, Journal of Chemical Education 2017 94 (12), 1852-1859 DOI: 10.1021/acs.jchemed.7b00335 **undergraduate**
    - Tailoring Clicker Technology to Problem-Based Learning: What's the Best Approach? Russell J. Pearson, Journal of Chemical Education 2017 94 (12), 1866-1872 DOI: 10.1021/acs.jchemed.7b00270 **undergraduate**

    - Introduction to Stochastic Simulations for Chemical and Physical Processes: Principles and Applications Charles J. Weiss, Journal of Chemical Education 2017 94 (12), 1904-1910 DOI: 10.1021/acs.jchemed.7b00395 **physical-chemistry undergraduate; programming**
    - How Is the Freezing Point of a Binary Mixture of Liquids Related to the Composition? A Guided Inquiry Experiment Sally S. Hunnicutt, Alexander Grushow, and Rob Whitnell, Journal of Chemical Education 2017 94 (12), 1983-1988 DOI: 10.1021/acs.jchemed.7b00409 **physical-chemistry undergraduate**
    - Determining the Speed of Sound and Heat Capacity Ratios of Gases by Acoustic Interferometry Thomas D. Varberg, Bradley W. Pearlman, Ian A. Wyse, Samuel P. Gleason, Dalir H. P. Kellett, and Kenneth L. Moffett, Journal of Chemical Education 2017 94 (12), 1995-1998 DOI: 10.1021/acs.jchemed.7b00526 **physical-chemistry undergraduate**
- novembre
    - Polymer Day: Outreach Experiments for High School Students Jeffrey M. Ting, Ralm G. Ricarte, Deborah K. Schneiderman, Stacey A. Saba, Yaming Jiang, Marc A. Hillmyer, Frank S. Bates, Theresa M. Reineke, Christopher W. Macosko, and Timothy P. Lodge, J. Chem. Educ., 2017, 94 (11), pp 1629–1638 DOI: 10.1021/acs.jchemed.6b00767
    - Augmenting Primary and Secondary Education with Polymer Science and Engineering Rose K. Cersonsky, Leanna L. Foster, Taeyong Ahn, Ryan J. Hall, Harry L. van der Laan, and Timothy F. Scott, J. Chem. Educ., 2017, 94 (11), pp 1639–1646 DOI: 10.1021/acs.jchemed.6b00805
    - Illustrating Plastic Production and End-of-Life Plastic Treatment with Interlocking Building Blocks Stephan Enthaler, J. Chem. Educ., 2017, 94 (11), pp 1746–1751 DOI: 10.1021/acs.jchemed.6b00888
- octobre
    - A(nother) Modification of the Ammonia Fountain Demonstration Ben Ruekberg and David L. Freeman, J. Chem. Educ., 2017, 94 (10), pp 1397–1398 DOI: 10.1021/acs.jchemed.7b00295
    - Unpacking “Active Learning”: A Combination of Flipped Classroom and Collaboration Support Is More Effective but Collaboration Support Alone Is Not Martina A. Rau, Kristopher Kennedy, Lucas Oxtoby, Mark Bollom, and John W. Moore, J. Chem. Educ., 2017, 94 (10), pp 1406–1414 DOI: 10.1021/acs.jchemed.7b00240
    - Differential Use of Study Approaches by Students of Different Achievement Levels Diane M. Bunce, Regis Komperda, Maria J. Schroeder, Debra K. Dillner, Shirley Lin, Melonie A. Teichert, and JudithAnn R. Hartman, J. Chem. Educ., 2017, 94 (10), pp 1415–1424 DOI: 10.1021/acs.jchemed.7b00202
    - Illustrating the Basic Functioning of Mass Analyzers in Mass Spectrometers with Ball-Rolling Mechanisms Ryo Horikoshi, Fumitaka Takeiri, Riho Mikita, Yoji Kobayashi, and Hiroshi Kageyama, J. Chem. Educ., 2017, 94 (10), pp 1502–1506 DOI: 10.1021/acs.jchemed.7b00297
    - Bird’s-Eye View of Sampling Sites: Using Unmanned Aerial Vehicles To Make Chemistry Fieldwork Videos Fun Man Fung and Simon Francis Watts, J. Chem. Educ., 2017, 94 (10), pp 1557–1561 DOI: 10.1021/acs.jchemed.6b00985
    - Exploring Matter: An Interactive, Inexpensive Chemistry Exhibit for Museums Steven Murov and Arnold Chavez, J. Chem. Educ., 2017, 94 (10), pp 1571–1579 DOI: 10.1021/acs.jchemed.6b01024
- septembre
    - Students’ Concept-Building Approaches: A Novel Predictor of Success in Chemistry Courses Regina F. Frey , Michael J. Cahill, and Mark A. McDaniel, J. Chem. Educ., 2017, 94 (9), pp 1185–1194 DOI: 10.1021/acs.jchemed.7b00059
    - Investigating the Antioxidant Capacity of Fruits and Fruit Byproducts through an Introductory Food Chemistry Experiment for High School Cristina Soares, Manuela Correia,

Cristina Delerue-Matos, and M. Fátima Barroso, J. Chem. Educ., 2017, 94 (9), pp 1291–1295 DOI: 10.1021/acs.jchemed.7b00045
    - Determination of Titratable Acidity in Wine Using Potentiometric, Conductometric, and Photometric Methods Dietrich A. Volmer, Luana Curbani, Timothy A. Parker, Jennifer Garcia, Linda D. Schultz, and Endler Marcel Borges, J. Chem. Educ., 2017, 94 (9), pp 1296–1302 DOI: 10.1021/acs.jchemed.6b00891
- août
    - Transforming a Traditional Laboratory to an Inquiry-Based Course: Importance of Training TAs when Redesigning a Curriculum Lindsay B. Wheeler, Charles P. Clark, and Charles M. Grisham, J. Chem. Educ., 2017, 94 (8), pp 1019–1026 DOI: 10.1021/acs.jchemed.6b00831
    - Beyond “Inert” Ideas to Teaching General Chemistry from Rich Contexts: Visualizing the Chemistry of Climate Change (VC3) Peter G. Mahaffy, Thomas A. Holme, Leah Martin-Visscher, Brian E. Martin, Ashley Versprille, Mary Kirchhoff, Lallie McKenzie, and Marcy Towns, J. Chem. Educ., 2017, 94 (8), pp 1027–1035 DOI: 10.1021/acs.jchemed.6b01009
    - Campus as a Living Laboratory for Sustainability: The Chemistry Connection Timothy Lindstrom and Catherine Middlecamp, J. Chem. Educ., 2017, 94 (8), pp 1036–1042 DOI: 10.1021/acs.jchemed.6b00624
    - A Forensic Experiment: The Case of the Crime at the Cinema J. M. Valente Nabais and Sara D. Costa, J. Chem. Educ., 2017, 94 (8), pp 1111–1117 DOI: 10.1021/acs.jchemed.6b00942
    - Using Beads and Divided Containers To Study Kinetic and Equilibrium Isotope Effects in the Laboratory and in the Classroom Dean J. Campbell, Emily R. Brewer, Keri A. Martinez, and Tamara J. Fitzjarrald, J. Chem. Educ., 2017, 94 (8), pp 1118–1123 DOI: 10.1021/acs.jchemed.6b01004
- juillet
    - Three-Dimensional (3D) Printers in Libraries: Perspective and Preliminary Safety Analysis Neelam Bharti and Shailendra Singh, J. Chem. Educ., 2017, 94 (7), pp 879–885 DOI: 10.1021/acs.jchemed.6b00745
    - 3D Printing of Molecular Models with Calculated Geometries and p Orbital Isosurfaces Felix A. Carroll and David N. Blauch, J. Chem. Educ., 2017, 94 (7), pp 886–891 DOI: 10.1021/acs.jchemed.6b00933
    - An Inquiry Experience with High School Students To Develop an Understanding of Intermolecular Forces by Relating Boiling Point Trends and Molecular Structure Melinda Ogden, J. Chem. Educ., 2017, 94 (7), pp 897–902 DOI: 10.1021/acs.jchemed.6b00697
    - Another Twist of the Foam: An Effective Test Considering a Quantitative Approach to “Elephant’s Toothpaste” Franco Hernando, Santiago Laperuta, Jeanine Van Kuijl, Nihuel Laurin, Federico Sacks, and Andrés Ciolino, J. Chem. Educ., 2017, 94 (7), pp 907–910 DOI: 10.1021/acs.jchemed.7b00040
    - Are Aqueous Solutions of Amphiprotic Anions Acidic, Basic, or Neutral? A Demonstration with Common pH Indicators Jervee M. Punzalan and Voltaire G. Organo, J. Chem. Educ., 2017, 94 (7), pp 911–915 DOI: 10.1021/acs.jchemed.6b00711
    - Quantifying Protein Concentrations Using Smartphone Colorimetry: A New Method for an Established Test Clifford T. Gee, Eric Kehoe, William C. K. Pomerantz, and R. Lee Penn, J. Chem. Educ., 2017, 94 (7), pp 941–945 DOI: 10.1021/acs.jchemed.6b00676
- juin
    - pKa Values in the Undergraduate Curriculum: What Is the Real pKa of Water? Todd P. Silverstein and Stephen T. Heller, J. Chem. Educ., 2017, 94 (6), pp 690–695 DOI: 10.1021/acs.jchemed.6b00623
    - Blue Bottle Experiment: Learning Chemistry without Knowing the Chemicals Taweetham Limpanuparb, Cherprang Areekul, Punchalee Montriwat, and Urawadee Rajchakit, J. Chem. Educ., 2017, 94 (6), pp 730–737 DOI: 10.1021/acs.jchemed.6b00844

    - Inexpensive Miniature Programmable Magnetic Stirrer from Reconfigured Computer Parts Conan Mercer and Dónal Leech, J. Chem. Educ., 2017, 94 (6), pp 816–818 DOI: 10.1021/acs.jchemed.7b00184
- mai
    - Suggestion of a Viewpoint Change for the Classification Criteria of Redox Reactions Seoung-Hey Paik, Sungki Kim, and Kihyang Kim, J. Chem. Educ., 2017, 94 (5), pp 563–568 DOI: 10.1021/acs.jchemed.6b00593
    - A Glowing Recommendation: A Project-Based Cooperative Laboratory Activity To Promote Use of the Scientific and Engineering Practices, Justin H. Carmel, Joseph S. Ward, and Melanie M. Cooper, J. Chem. Educ., 2017, 94 (5), pp 626–631 DOI: 10.1021/acs.jchemed.6b00628
    - Getting the Argument Started: A Variation on the Density Investigation Joi P. Walker and Steven F. Wolf, J. Chem. Educ., 2017, 94 (5), pp 632–635 DOI: 10.1021/acs.jchemed.6b00621
    - Determining a Solubility Product Constant by Potentiometric Titration To Increase Students' Conceptual Understanding of Potentiometry and Titrations Lauren E. Grabowski and Scott R. Goode, J. Chem. Educ., 2017, 94 (5), pp 636–639 DOI: 10.1021/acs.jchemed.6b00460
- avril
    - Assessing Student Knowledge of Chemistry and Climate Science Concepts Associated with Climate Change: Resources To Inform Teaching and Learning, Ashley Versprille, Adam Zabih, Thomas A. Holme, Lallie McKenzie, Peter Mahaffy, Brian Martin and Marcy Towns, J. Chem. Educ., 2017, 94 (4), pp 407–417 DOI: 10.1021/acs.jchemed.6b00759
    - What We Don't Test: What an Analysis of Unreleased ACS Exam Items Reveals about Content Coverage in General Chemistry Assessments, Jessica J. Reed, Sachel M. Villafañe, Jeffrey R. Raker, Thomas A. Holme, and Kristen L. Murphy, J. Chem. Educ., 2017, 94 (4), pp 418–428 DOI: 10.1021/acs.jchemed.6b00863
    - A Tasty Approach to Statistical Experimental Design in High School Chemistry: The Best Lemon Cake, Lucia Liguori, J. Chem. Educ., 2017, 94 (4), pp 465–470 DOI: 10.1021/acs.jchemed.6b00369
    - CO2 Dry Cleaning: A Benign Solvent Demonstration Accessible to K–8 Audiences, Reuben Hudson, Henry M. Ackerman, Lindsay K. Gallo, Addison S. Gwinner, Anna Krauss, John D. Sears, Alexandra Bishop, Kristin N. Esdale, and Jeffrey L. Katz, J. Chem. Educ., 2017, 94 (4), pp 480–482 DOI: 10.1021/acs.jchemed.6b00412
    - Rapid Production of a Porous Cellulose Acetate Membrane for Water Filtration using Readily Available Chemicals, Adrian Kaiser, Wendelin J. Stark , and Robert N. Grass, J. Chem. Educ., 2017, 94 (4), pp 483–487 DOI: 10.1021/acs.jchemed.6b00776
    - "Greening" a Familiar General Chemistry Experiment: Coffee Cup Calorimetry to Determine the Enthalpy of Neutralization of an Acid–Base Reaction and the Specific Heat Capacity of Metals, A. M. R. P. Bopegedera and K. Nishanthi R. Perera, J. Chem. Educ., 2017, 94 (4), pp 494–499 DOI: 10.1021/acs.jchemed.6b00189
- mars
    - Unraveling the Complexities: An Investigation of the Factors That Induce Load in Chemistry Students Constructing Lewis Structures Jessica M. Tiettmeyer, Amelia F. Coleman, Ryan S. Balok, Tyler W. Gampp, Patrick L. Duffy, Kristina M. Mazzarone, and Nathaniel P. Grove, J. Chem. Educ., 2017, 94 (3), pp 282–288 DOI: 10.1021/acs.jchemed.6b00363
    - Understanding Chemical Equilibrium: The Role of Gas Phases and Mixing Contributions in the Minimum of Free Energy Plots, J. Pablo Tomba, J. Chem. Educ., 2017, 94 (3), pp 327–334 DOI: 10.1021/acs.jchemed.6b00726
    - Unboiling an Egg: An Introduction to Circular Dichroism and Protein Refolding John P.

Hoben, Jianing Wang, and Anne-Frances Miller, J. Chem. Educ., 2017, 94 (3), pp 356–360 DOI: 10.1021/acs.jchemed.6b00319
    - Calculating the Confidence and Prediction Limits of a Rate Constant at a Given Temperature from an Arrhenius Equation Using Excel, Ronald A. Hites, J. Chem. Educ., 2017, 94 (3), pp 398–400 DOI: 10.1021/acs.jchemed.6b00842
- février
    - Mapping the Teaching of History of Chemistry in Europe Ignacio Suay-Matallana, José Ramón Bertomeu Sánchez, J. Chem. Educ., 2017, 94 (2), pp 133–136 DOI: 10.1021/acs.jchemed.6b00401
    - The Chemistry of Photography: Still a Terrific Laboratory Course for Nonscience Majors Simeen Sattar, J. Chem. Educ., 2017, 94 (2), pp 183–189 DOI: 10.1021/acs.jchemed.6b00400
    - Using Interlocking Toy Building Blocks To Assess Conceptual Understanding In Chemistry Michael J. Geyer, J. Chem. Educ., 2017, 94 (2), pp 202–205 DOI: 10.1021/acs.jchemed.6b00551
    - Using Students' Conceptions of Air To Evaluate a Guided-Inquiry Activity Classifying Matter Using Particulate Models D. Amanda Vilardo, Ann H. MacKenzie, and Ellen J. Yezierski, J. Chem. Educ., 2017, 94 (2), pp 206–210 DOI: 10.1021/acs.jchemed.5b01011
    - Self-Motion of Sodium Benzoate Flakes on a Water Surface: A Demonstration Katherine V. Darvesh and Earl Martin, J. Chem. Educ., 2017, 94 (2), pp 226–229 DOI: 10.1021/acs.jchemed.6b00658
    - Demonstrating the Effect of Surfactant on Water Retention of Waxy Leaf Surfaces Yu-Chun Chiu, Matthew A. Jenks, Michelle Richards-Babb, Betsy B. Ratcliff, John A. Juvik, and Kang-Mo Ku, J. Chem. Educ., 2017, 94 (2), pp 230–234 DOI: 10.1021/acs.jchemed.6b00546
    - Building Large Molecular Models with Plastic Screw-On Bottle Caps and Sturdy Connectors Dawid Siodłak, J. Chem. Educ., 2017, 94 (2), pp 256–259 DOI: 10.1021/acs.jchemed.6b00576
- janvier
    - Choice of Study Resources in General Chemistry by Students Who Have Little Time To Study Diane M. Bunce, Regis Komperda , Debra K. Dillner, Shirley Lin, Maria J. Schroeder, and Judith Ann R. Hartman, J. Chem. Educ., 2017, 94 (1), pp 11–18 DOI: 10.1021/acs.jchemed.6b00285
    - Characterizing Teaching Assistants' Knowledge and Beliefs Following Professional Development Activities within an Inquiry-Based General Chemistry Context Lindsay B. Wheeler, Jennifer L. Maeng, Brooke A. Whitworth, J. Chem. Educ., 2017, 94 (1), pp 19–28 DOI: 10.1021/acs.jchemed.6b00373
    - Authentic Performance in the Instrumental Analysis Laboratory: Building a Visible Spectrophotometer Prototype Mark V. Wilson and Erin Wilson, J. Chem. Educ., 2017, 94 (1), pp 44–51 DOI: 10.1021/acs.jchemed.6b00515
    - An Inexpensive Programmable Dual-Syringe Pump for the Chemistry Laboratory, Mark S. Cubberley and William A. Hess, J. Chem. Educ., 2017, 94 (1), pp 72–74 DOI: 10.1021/acs.jchemed.6b00598
    - Simultaneous Introduction of Redox and Coordination Chemistry Concepts in a Single Laboratory Experiment Philip J. Ferko, Jeffrey R. Withers, Hung Nguyen, Joshua Ema, Tim Ema, Charles Allison, Christian Dornhoefer, Nigam P. Rath, and Stephen M. Holmes, J. Chem. Educ., 2017, 94 (1), pp 95–100 DOI: 10.1021/acs.jchemed.6b00256
    - Alternative Hydrogen Peroxide Sources for Peroxyoxalate "Glowstick" Chemiluminescence Demonstrations Iain A. Smellie, Joanna K. D Aldred (née Prentis), Benjamin Bower, Amber Cochrane, Laurie Macfarlane, Hollie B. McCarron, Roxana O'Hara, Iain L. J. Patterson, Marie I. Thomson, and Jessica M. Walker, J. Chem. Educ., 2017, 94 (1), pp 112–114 DOI:

10.1021/acs.jchemed.6b00536

## 2016

- décembre
  - A Parallel Controlled Study of the Effectiveness of a Partially Flipped Organic Chemistry Course on Student Performance, Perceptions, and Course Completion, James C. Shattuck, J. Chem. Educ., 2016, 93 (12), pp 1984–1992 DOI: 10.1021/acs.jchemed.6b00393
  - Using Demonstrations Involving Combustion and Acid–Base Chemistry To Show Hydration of Carbon Dioxide, Sulfur Dioxide, and Magnesium Oxide and Their Relevance for Environmental Climate Science, J. Chem. Educ., 2016, 93 (12), pp 2063–2067 DOI: 10.1021/acs.jchemed.6b00310
- novembre
  - Score Increase and Partial-Credit Validity When Administering Multiple-Choice Tests Using an Answer-Until-Correct Format, Aaron D. Slepkov, Andrew J. Vreugdenhil, and Ralph C. Shiell, J. Chem. Educ., 2016, 93 (11), pp 1839–1846 DOI: 10.1021/acs.jchemed.6b00028
  - Atomic Tiles: Manipulative Resources for Exploring Bonding and Molecular Structure, Alan L. Kiste, Rebecca G. Hooper, Gregory E. Scott, and Seth D. Bush, J. Chem. Educ., 2016, 93 (11), pp 1900–1903 DOI: 10.1021/acs.jchemed.6b00361
  - A Colorful Demonstration to Visualize and Inquire into Essential Elements of Chemical Equilibrium, Ingo Eilks and Ozcan Gulacar, J. Chem. Educ., 2016, 93 (11), pp 1904–1907 DOI: 10.1021/acs.jchemed.6b00252
  - Stepwise Inquiry into Hard Water in a High School Chemistry Laboratory, Mami Kakisako, Kazuyuki Nishikawa, Masayoshi Nakano, Kana S. Harada, Tomoyuki Tatsuoka, and Nobuyoshi Koga, J. Chem. Educ., 2016, 93 (11), pp 1923–1928 DOI: 10.1021/acs.jchemed.6b00217
  - Reflections on “YouTestTube.com”: An Online Video-Sharing Platform To Engage Students with Chemistry Laboratory Classes, Stephen McClean, Kenneth G. McCartan, Sheryl Meskin, Beronia Gorges, and W. Paul Hagan, J. Chem. Educ., 2016, 93 (11), pp 1863–1870 DOI: 10.1021/acs.jchemed.6b00045
- octobre
  - Investigating Students’ Reasoning about Acid–Base Reactions, Melanie M. Cooper, Hovig Kouyoumdjian, and Sonia M. Underwood, J. Chem. Educ., 2016, 93 (10), pp 1703–1712, **Article ASAP** DOI: 10.1021/acs.jchemed.6b00417 **ACS Editors' Choice (open access)**
  - Investigating Dissolution and Precipitation Phenomena with a Smartphone Microscope Gregg J. Lumetta and Edgar Arcia, J. Chem. Educ., 2016, 93 (10), pp 1754–1759 DOI: 10.1021/acs.jchemed.6b00248
  - Kinetic Explorations of the Candy–Cola Soda Geyser Trevor P. T. Sims and Thomas S. Kuntzleman, J. Chem. Educ., 2016, 93 (10), pp 1809–1813 DOI: 10.1021/acs.jchemed.6b00263
  - Simple and Inexpensive UV-Photometer Using LEDs as Both Light Source and Detector Eivind V. Kvittingen, Lise Kvittingen, Birte Johanne Sjursnes, and Richard Verley, J. Chem. Educ., 2016, 93 (10), pp 1814–1817 DOI: 10.1021/acs.jchemed.6b00156
- septembre
  - Development of a Three-Tier Test as a Valid Diagnostic Tool for Identification of Misconceptions Related to Carbohydrates, Dušica D. Milenković, Tamara N. Hrin, Mirjana D. Segedinac, and Saša Horvat, J. Chem. Educ., 2016, 93 (9), pp 1514–1520 DOI: 10.1021/acs.jchemed.6b00261
  - Introducing Inquiry-Based Methodologies during Initial Secondary Education Teacher Training Using an Open-Ended Problem about Chemical Change, Iñigo Rodríguez-Arteche

and M. Mercedes Martínez-Aznar, J. Chem. Educ., 2016, 93 (9), pp 1528–1535 DOI: 10.1021/acs.jchemed.5b01037

- août
  - Connecting Protein Structure to Intermolecular Interactions: A Computer Modeling Laboratory Mohammed Abualia, Lianne Schroeder, Megan Garcia, Patrick L. Daubenmire, Donald J. Wink, and Ginevra A. Clark, J. Chem. Educ., 2016, 93 (8), pp 1353–1363 DOI: 10.1021/acs.jchemed.5b00910
  - Identifying Misconceptions Related to Chemical Bonding Concepts in the Slovak School System Using the Bonding Representations Inventory as a Diagnostic Tool, Michal Vrabec and Miroslav Prokša, J. Chem. Educ., 2016, 93 (8), pp 1364–1370 DOI: 10.1021/acs.jchemed.5b00953
  - FlashPhotol: Using a Flash Photolysis Apparatus Simulator To Introduce Students to the Kinetics of Transient Species and Fast Reactions Stephen W. Bigger, J. Chem. Educ., 2016, 93 (8), pp 1475–1477 DOI: 10.1021/acs.jchemed.5b00896
- juillet
  - Optimization and Design of an Absorbance Spectrometer Controlled Using a Raspberry Pi To Improve Analytical Skills Kristelle Bougot-Robin, Jack Paget, Stephen C. Atkins, and Joshua B. Edel, J. Chem. Educ., 2016, 93 (7), pp 1232–1240 DOI: 10.1021/acs.jchemed.5b01006
  - A Game-Based Approach To Learning the Idea of Chemical Elements and Their Periodic Classification Antonio Joaquín Franco-Mariscal, José María Oliva-Martínez, Ángel Blanco-López, and Enrique España-Ramos, J. Chem. Educ., 2016, 93 (7), pp 1173–1190 DOI: 10.1021/acs.jchemed.5b00846
  - An Intensive Training Program for Effective Teaching Assistants in Chemistry Vera Dragisich, Valerie Keller, and Meishan Zhao, J. Chem. Educ., 2016, 93 (7), pp 1204–1210 DOI: 10.1021/acs.jchemed.5b00577
  - Piloting Blended Strategies To Resolve Laboratory Capacity Issues in a First-Semester General Chemistry Course Shayna Burchett, Jack Hayes, Annalise Pfaff, Emmalou T. Satterfield, Amy Skyles, and Klaus Woelk, J. Chem. Educ., 2016, 93 (7), pp 1217–1222 DOI: 10.1021/acs.jchemed.6b00078
  - Construction and Characterization of a Compact, Portable, Low-Cost Colorimeter for the Chemistry Lab Carrie M. Clippard, William Hughes, Balwant S. Chohan, Danny G. Sykes, J. Chem. Educ., 2016, 93 (7), pp 1241–1248 DOI: 10.1021/acs.jchemed.5b00729
  - Studying Equilibrium in the Chemical Reaction between Ferric and Iodide Ions in Solution Using a Simple and Inexpensive Approach Pavel Anatolyevich Nikolaychuk and Alyona Olegovna Kuvaeva, J. Chem. Educ., 2016, 93 (7), pp 1267–1269 DOI: 10.1021/acs.jchemed.5b00958
  - User-Friendly 3D Printed Colorimeter Models for Student Exploration of Instrument Design and Performance Lon A. Porter Jr., Benjamin M. Washer, Mazin H. Hakim, and Richard F. Dallinger, J. Chem. Educ., 2016, 93 (7), pp 1305–1309 DOI: 10.1021/acs.jchemed.6b00041
  - An Inexpensive, Open-Source USB Arduino Data Acquisition Device for Chemical Instrumentation James P. Grinias, Jason T. Whitfield, Erik D. Guetschow, and Robert T. Kennedy, J. Chem. Educ., 2016, 93 (7), pp 1316–1319 DOI: 10.1021/acs.jchemed.6b00262
  - A Chemical Instrumentation Course on Microcontrollers and Op Amps. Construction of a pH Meter Nikos J. Papadopoulos and Andreas Jannakoudakis, J. Chem. Educ., 2016, 93 (7), pp 1323–1325 DOI: 10.1021/acs.jchemed.5b00743
- juin
  - Effectiveness of Inquiry-Based Lessons Using Particulate Level Models To Develop High School Students' Understanding of Conceptual Stoichiometry, Stephanie Kimberlin and Ellen Yezierski, J. Chem. Educ., 2016, 93 (6), pp 1002–1009 DOI: 10.1021/acs.jchemed.5b01010

    - Insights into How Students Learn the Difference between a Weak Acid and a Strong Acid from Cartoon Tutorials Employing Visualizations, Resa M. Kelly and Sevil Akaygun, J. Chem. Educ., 2016, 93 (6), pp 1010–1019 DOI: 10.1021/acs.jchemed.6b00034
- mai
    - Thinking Like a Chemist: Development of a Chemistry Card-Sorting Task To Probe Conceptual Expertise Felicia E. Krieter, Ryan W. Julius, Kimberly D. Tanner, Seth D. Bush, and Gregory E. Scott, J. Chem. Educ., 2016, 93 (5), pp 811–820 DOI: 10.1021/acs.jchemed.5b00992
    - Establishing the Validity of Using Network Analysis Software for Measuring Students' Mental Storage of Chemistry Concepts Kelly Y. Neiles, Ivy Todd, and Diane M. Bunce, J. Chem. Educ., 2016, 93 (5), pp 821–831 DOI: 10.1021/acs.jchemed.5b00748
    - Correct Use of Helmholtz and Gibbs Function Differences, ΔA and ΔG: The van't Hoff Reaction Box Leslie Glasser, J. Chem. Educ., 2016, 93 (5), pp 978–980 DOI: 10.1021/acs.jchemed.5b00925
    - Investigating General Chemistry Students' Metacognitive Monitoring of Their Exam Performance by Measuring Postdiction Accuracies over Time Morgan J. Hawker, Lisa Dysleski, and Dawn Rickey, J. Chem. Educ., 2016, 93 (5), pp 832–840 DOI: 10.1021/acs.jchemed.5b00705
- avril
    - A Quantum Chemistry Concept Inventory for Physical Chemistry Classes Marilu Dick-Perez, Cynthia J. Luxford, Theresa L. Windus, and Thomas Holme J. Chem. Educ., 2016, 93 (4), pp 605–612 DOI: 10.1021/acs.jchemed.5b00781 (college chemistry)
    - "Can" You Really Make a Battery Out of That? Michael A. Parkes, Thomas Chen, Billy Wu, Vladimir Yufit, and Gregory J. Offer, J. Chem. Educ., 2016, 93 (4), pp 681–686 DOI: 10.1021/acs.jchemed.5b00496
    - Development and Implementation of a Simple, Engaging Acid Rain Neutralization Experiment and Corresponding Animated Instructional Video for Introductory Chemistry Students Danielle Rand, Craig J. Yennie, Patrick Lynch, Gregory Lowry, James Budarz, Wenlei Zhu, and Li-Qiong Wang, J. Chem. Educ., 2016, 93 (4), pp 722–728 DOI: 10.1021/acs.jchemed.5b00635
    - Using ChemDuino, Excel, and PowerPoint as Tools for Real-Time Measurement Representation in Class Malte Walkowiak and Andreas Nehring, J. Chem. Educ., 2016, 93 (4), pp 778–780 DOI: 10.1021/acs.jchemed.5b00923
- mars
    - Improving Information Literacy Skills through Learning To Use and Edit Wikipedia: A Chemistry Perspective, Martin A. Walker and Ye Li, J. Chem. Educ., 2016, 93 (3), pp 509–515 DOI: 10.1021/acs.jchemed.5b00525 + comment
- février
    - Using Cooperative Learning To Teach Chemistry: A Meta-analytic Review Abdi-Rizak M. Warfa, J. Chem. Educ. 2016, 93(2), 248-255 DOI: 10.1021/acs.jchemed.5b00608
    - Quantifying Gold Nanoparticle Concentration in a Dietary Supplement Using Smartphone Colorimetry and Google Applications Antonio R. Campos, Cassandra M. Knutson, Theodore R. Knutson, Abbie R. Mozzetti, Christy L. Haynes, and R. Lee Penn, J. Chem. Educ., 2016, 93 (2), pp 318–321 DOI: 10.1021/acs.jchemed.5b00385
    - Using Interactive Psychrometric Charts to Visualize and Explore Psychrometric Processes, Péter Erdélyi and Róbert Rajkó, J. Chem. Educ., 2016, 93 (2), pp 391–393 DOI: 10.1021/acs.jchemed.5b00779
- janvier
    - A "Flipped Classroom" Reality Check, Norbert J. Pienta, J. Chem. Educ., 2016, 93 (1), pp 1–2 DOI: 10.1021/acs.jchemed.5b00996 **editorial**
    - Central Ideas in Chemistry: An Alternative Perspective Vicente Talanquer, J. Chem. Educ.

2016, 93, 1, 3-8 DOI: 10.1021/acs.jchemed.5b00434
    - Five Things Chemists (and Other Science Faculty) Should Know about the Education Research Literature S. Seethaler, J. Chem. Educ., 2016, 93 (1), pp 9–12 DOI: 10.1021/acs.jchemed.5b00109 (commentaire)
    - Effect of Computer Simulations at the Particulate and Macroscopic Levels on Students' Understanding of the Particulate Nature of Matter Hui Tang and Michael R. Abraham, J. Chem. Educ., 2016, 93 (1), pp 31–38 DOI: 10.1021/acs.jchemed.5b00599
    - Encouraging Higher-Order Thinking in General Chemistry by Scaffolding Student Learning Using Marzano's Taxonomy Santiago Toledo and Justin M. Dubas, J. Chem. Educ., 2016, 93 (1), pp 64–69 DOI: 10.1021/acs.jchemed.5b00184
    - Representation and Analysis of Chemistry Core Ideas in Science Education Standards between China and the United States Yanlan Wan and Hualin Bi, J. Chem. Educ., 2016, 93 (1), pp 70–78 DOI: 10.1021/ed500861g
    - Identifying Liquid–Gas System Misconceptions and Addressing Them Using a Laboratory Exercise on Pressure–Temperature Diagrams of a Mixed Gas Involving Liquid–Vapor Equilibrium Masahiro Yoshikawa and Nobuyoshi Koga, J. Chem. Educ., 2016, 93 (1), pp 79–85 DOI: 10.1021/acs.jchemed.5b00107
    - Teaching UV–Vis Spectroscopy with a 3D-Printable Smartphone Spectrophotometer Elise K. Grasse, Morgan H. Torcasio, and Adam W. Smith, J. Chem. Educ., 2016, 93 (1), pp 146–151 DOI: 10.1021/acs.jchemed.5b00654
    - Chemistry and Art in a Bag: An Easy-To-Implement Outreach Activity Making and Painting with a Copper-Based Pigment Anne C. Gaquere-Parker, N. Allie Doles, and Cass D. Parker, J. Chem. Educ., 2016, 93 (1), pp 152–153 DOI: 10.1021/acs.jchemed.5b00364
    - Build Your Own Photometer: A Guided-Inquiry Experiment To Introduce Analytical Instrumentation Jessie J. Wang, José R. Rodríguez Núñez, E. Jane Maxwell, and W. Russ Algar, J. Chem. Educ., 2016, 93 (1), pp 166–171 DOI: 10.1021/acs.jchemed.5b00426
    - Kinetics, Reaction Orders, Rate Laws, and Their Relation to Mechanisms: A Hands-On Introduction for High School Students Using Portable Spectrophotometry Jack M. Carraher, Sarah M. Curry, and Jean-Philippe Tessonnier, J. Chem. Educ., 2016, 93 (1), pp 172–174 DOI: 10.1021/acs.jchemed.5b00640
    - Integrating Chemistry Laboratory Instrumentation into the Industrial Internet: Building, Programming, and Experimenting with an Automatic Titrator Nicole Famularo, Yana Kholod, and Dmytro Kosenkov, J. Chem. Educ., 2016, 93 (1), pp 175–181 DOI: 10.1021/acs.jchemed.5b00494

## 2015

- décembre
    - Are Noncovalent Interactions an Achilles Heel in Chemistry Education? A Comparison of Instructional Approaches Leah C. Williams, Sonia M. Underwood, Michael W. Klymkowsky, and Melanie M. Cooper, J. Chem. Educ., 2015, 92 (12), pp 1979–1987 DOI: 10.1021/acs.jchemed.5b00619
    - The Digital Pipetting Badge: A Method To Improve Student Hands-On Laboratory Skills Marcy Towns, Cynthia J. Harwood, M. Brooke Robertshaw, Jason Fish, and Kevin O'Shea, J. Chem. Educ., 2015, 92 (12), pp 2038–2044 DOI: 10.1021/acs.jchemed.5b00464
    - Implementation of Problem-Based Learning in Environmental Chemistry Stina Jansson, Hanna Söderström, Patrik L. Andersson, and Malin L. Nording, J. Chem. Educ., 2015, 92 (12), pp 2080–2086 DOI: 10.1021/ed500970y
- novembre
    - Exploring the Structure and Function of the Chemistry Self-Concept Inventory with High

School Chemistry Students Sara E. Nielsen and Ellen Yezierski, J. Chem. Educ., 2015, 92 (11), pp 1782–1789 DOI: 10.1021/acs.jchemed.5b00302 (+ ref sur CSCI)

- octobre
  - ChemDuino: Adapting Arduino for Low-Cost Chemical Measurements in Lecture and Laboratory Štěpánka Kubínová and Jan Šlégr, J. Chem. Educ., 2015, 92 (10), pp 1751–1753 DOI: 10.1021/ed5008102
  - Assembling and Using an LED-Based Detector To Monitor Absorbance Changes during Acid–Base Titrations Willy G. Santos and Éder T. G. Cavalheiro, J. Chem. Educ., 2015, 92 (10), pp 1709–1715 DOI: 10.1021/ed500931p
  - Improvements to the Whoosh Bottle Rocket Car Demonstration Dean J. Campbell, Felicia A. Staiger, and Chaitanya N. Jujjavarapu, J. Chem. Educ., 2015, 92 (10), pp 1687–1691 DOI: 10.1021/acs.jchemed.5b00518
  - Variations on the “Blue-Bottle” Demonstration Using Food Items That Contain FD&C Blue #1Felicia A. Staiger, Joshua P. Peterson, and Dean J. Campbell, J. Chem. Educ., 2015, 92 (10), pp 1684–1686 DOI: 10.1021/acs.jchemed.5b00190
  - Exploring the Everyday Context of Chemical Elements: Discovering the Elements of Car Components Antonio Joaquín Franco-Mariscal, J. Chem. Educ., 2015, 92 (10), pp 1672–1677 DOI: 10.1021/acs.jchemed.5b00164
  - Approaches To Determining the Oxidation State of Nitrogen and Carbon Atoms in Organic Compounds for High School Students Kamil Jurowski, Małgorzata Krystyna Krzeczkowska, and Anna Jurowska, J. Chem. Educ., 2015, 92 (10), pp 1645–1652 DOI: 10.1021/ed500645v
  - Students’ Understanding of Analogy after a CORE (Chemical Observations, Representations, Experimentation) Learning Cycle, General Chemistry Experiment Shirly Avargil, Mitchell R. M. Bruce, François G. Amar, and Alice E. Bruce, J. Chem. Educ., 2015, 92 (10), pp 1626–1638 DOI: 10.1021/acs.jchemed.5b00230
  - Uncovering Chemical Thinking in Students’ Decision Making: A Fuel-Choice Scenario Gregory Banks, Michael Clinchot, Steven Cullipher, Robert Huie, Jennifer Lambertz, Rebecca Lewis, Courtney Ngai, Hannah Sevian, Gabriela Szteinberg, Vicente Talanquer, and Melissa Weinrich, J. Chem. Educ., 2015, 92 (10), pp 1610–1618 DOI: 10.1021/acs.jchemed.5b00119
  - What Is a Kilogram in the Revised International System of Units (SI)? Richard S. Davis, J. Chem. Educ., 2015, 92 (10), pp 1604–1609 DOI: 10.1021/acs.jchemed.5b00285
  - The Mole and Amount of Substance in Chemistry and Education: Beyond Official Definitions Carmen J. Giunta, J. Chem. Educ. 2015, 92(10), 1593-1597 DOI: 10.1021/ed5007376
- septembre
  - Design, Implementation, and Evaluation of a Flipped Format General Chemistry Course Gabriela C. Weaver and Hannah G. Sturtevant, J. Chem. Educ., 2015, 92 (9), pp 1437–1448 DOI: 10.1021/acs.jchemed.5b00316
  - Defining Conceptual Understanding in General Chemistry Thomas A. Holme, Cynthia J. Luxford, and Alexandra Brandriet, J. Chem. Educ., 2015, 92 (9), pp 1477–1483 DOI: 10.1021/acs.jchemed.5b00218 ACS Editors' Choice
  - Understanding the Relationship Among Arrhenius, Brønsted–Lowry, and Lewis Theories Seoung-Hey Paik, J. Chem. Educ., 2015, 92 (9), pp 1484–1489 DOI: 10.1021/ed500891w
  - The Dynamic Density Bottle: A Make-and-Take, Guided Inquiry Activity on Density Thomas S. Kuntzleman, J. Chem. Educ., 2015, 92 (9), pp 1503–1506 DOI: 10.1021/ed500830w
  - Using a Laboratory Inquiry with High School Students To Determine the Reaction Stoichiometry of Neutralization by a Thermochemical Approach Tomoyuki Tatsuoka, Kana Shigedomi, and Nobuyoshi Koga, J. Chem. Educ., 2015, 92 (9), pp 1526–1530 DOI: 10.1021/ed500947t

- août
  - Teaching Beginning Chemistry Students Simple Lewis Dot Structures Peter Nassiff and Wendy A. Czerwinski, J. Chem. Educ., 2015, 92 (8), pp 1409–1411 DOI: 10.1021/ed5007162
  - Student Understanding of Intermolecular Forces: A Multimodal Study Melanie M. Cooper, Leah C. Williams, and Sonia M. Underwood, J. Chem. Educ., 2015, 92 (8), pp 1288–1298 DOI: 10.1021/acs.jchemed.5b00169
  - Why Ask Why? Melanie M. Cooper, J. Chem. Educ., 2015, 92 (8), pp 1273–1279 DOI: 10.1021/acs.jchemed.5b00203
- juillet
  - A Comparison of Carbon Dioxide Emissions from Electric Vehicles to Emissions from Internal Combustion Vehicles Daniel J. Berger and Andrew D. Jorgensen, J. Chem. Educ., 2015, 92 (7), pp 1204–1208 DOI: 10.1021/acs.jchemed.5b00125
  - Multiple-Choice Exams and Guessing: Results from a One-Year Study of General Chemistry Tests Designed To Discourage Guessing Mark L. Campbell, J. Chem. Educ., 2015, 92 (7), pp 1194–1200 DOI: 10.1021/ed500465q
  - Implementation and Student Testing of a Web-Based, Student-Centered Stereochemistry Tutorial Nicola J. Burrmann and John W. Moore, J. Chem. Educ., 2015, 92 (7), pp 1178–1187 DOI: 10.1021/ed500635d
- juin
  - Student Fabrication and Use of Simple, Low-Cost, Paper-Based Galvanic Cells To Investigate Electrochemistry Anchalee Chatmontree, Sanoe Chairam, Saksri Supasorn, Maliwan Amatatongchai, Purim Jarujamrus, Suparb Tamuang, and Ekasith Somsook, J. Chem. Educ., 2015, 92 (6), pp 1044–1048 DOI: 10.1021/acs.jchemed.5b00117
  - Understanding Atomic Structure: Is There a More Direct and Compelling Connection between Atomic Line Spectra and the Quantization of an Atom’s Energy? Robert C. Rittenhouse, J. Chem. Educ., 2015, 92 (6), pp 1035–1039 DOI: 10.1021/ed5007234
  - Implementing an Equilibrium Law Teaching Sequence for Secondary School Students To Learn Chemical Equilibrium Marco Ghirardi, Fabio Marchetti, Claudio Pettinari, Alberto Regis, and Ezio Roletto, J. Chem. Educ., 2015, 92 (6), pp 1008–1015 DOI: 10.1021/ed500658s
- mai
  - Integration of Nanoparticle-Based Paper Sensors into the Classroom: An Example of Application for Rapid Colorimetric Analysis of Antioxidants Erica Sharpe and Silvana Andreescu, J. Chem. Educ., 2015, 92 (5), pp 886–891 DOI: 10.1021/ed400851m
  - Laboratory Production of Lemon Liqueur (Limoncello) by Conventional Maceration and a Two-Syringe System To Illustrate Rapid Solid–Liquid Dynamic Extraction Daniele Naviglio, Domenico Montesano, and Monica Gallo, J. Chem. Educ., 2015, 92 (5), pp 911–915 DOI: 10.1021/ed400379g
  - Using Flavor Chemistry To Design and Synthesize Artificial Scents and Flavors Jessica L. Epstein, Michael Castaldi, Grishma Patel, Peter Telidecki, and Kevin Karakkatt, J. Chem. Educ., 2015, 92 (5), pp 954–957 DOI: 10.1021/ed500615a
- avril
  - Making Sense of Students’ Actions in an Open-Ended Virtual Laboratory Environment Ya’akov (Kobi) Gal, Oriel Uzan, Robert Belford, Michael Karabinos, and David Yaron, J. Chem. Educ., 2015, 92 (4), pp 610–616 DOI: 10.1021/ed500531a
  - A Molecular Explanation of How the Fog Is Produced when Dry Ice Is Placed in Water Thomas S. Kuntzleman, Nathan Ford, Jin-Hwan No, and Mark E. Ott, J. Chem. Educ., 2015, 92 (4), pp 643–648 DOI: 10.1021/ed400754n
  - The Importance of Kinetic Metastability: Some Common Everyday Examples William B. Jensen, J. Chem. Educ., 2015, 92 (4), pp 649–654 DOI: 10.1021/ed500743r

- mars
  - Forensic Chemistry: The Revelation of Latent Fingerprints J. Brent Friesen, J. Chem. Educ., 2015, 92 (3), pp 497–504 DOI: 10.1021/ed400597u et Activities Designed for Fingerprint Dusting and the Chemical Revelation of Latent Fingerprints J. Brent Friesen, J. Chem. Educ., 2015, 92 (3), pp 505–508 DOI: 10.1021/ed500406v
  - Using Latex Balls and Acrylic Resin Plates To Investigate the Stacking Arrangement and Packing Efficiency of Metal Crystals Atsushi Ohashi, J. Chem. Educ., 2015, 92 (3), pp 512–516 DOI: 10.1021/ed5006954
  - The Oxidation of Iron: Experiment, Simulation, and Analysis in Introductory Chemistry Frederic E. Schubert, J. Chem. Educ., 2015, 92 (3), pp 517–520 DOI: 10.1021/ed5001729
- février
  - Intuitive Judgments Govern Students' Answering Patterns in Multiple-Choice Exercises in Organic Chemistry Nicole Graulich, J. Chem. Educ., 2015, 92 (2), pp 205–211 DOI: 10.1021/ed500641n
  - Students' Understandings of Acid Strength: How Meaningful Is Reliability When Measuring Alternative Conceptions? Stacey Lowery Bretz, LaKeisha McClary, Journal of Chemical Education 2015, 92, 2, 212-219 DOI: 10.1021/ed5005195
  - Students' Perceptions about the Use of Educational Games as a Tool for Teaching the Periodic Table of Elements at the High School Level Antonio Joaquín Franco-Mariscal, José María Oliva-Martínez, and M. L. Almoraima Gil, J. Chem. Educ., 2015, 92 (2), pp 278–285 DOI: 10.1021/ed4003578
- janvier
  - Electrolysis of Water in the Secondary School Science Laboratory with Inexpensive Microfluidics T. A. Davis, S. L. Athey, M. L. Vandevender, C. L. Crihfield, C. C. E. Kolanko, S. Shao, M. C. G. Ellington, J. K. Dicks, J. S. Carver, and L. A. Holland, J. Chem. Educ., 2015, 92 (1), pp 116–119 DOI: 10.1021/ed400757m
  - Designing, Constructing, and Using an Inexpensive Electronic Buret Tingting Cao, Qing Zhang, and Jonathan E. Thompson, J. Chem. Educ., 2015, 92 (1), pp 106–109 DOI: 10.1021/ed500509p
  - Low-Cost Magnetic Stirrer from Recycled Computer Parts with Optional Hot Plate Armando M. Guidote Jr., Giselle Mae M. Pacot, and Paul M. Cabacungan, J. Chem. Educ., 2015, 92 (1), pp 102–105 DOI: 10.1021/ed500153r
  - Using Wikis To Develop Collaborative Communities in an Environmental Chemistry Course Laura E. Pence and Harry E. Pence, J. Chem. Educ., 2015, 92 (1), pp 86–89 DOI: 10.1021/ed5001137

## 2014

- décembre
  - KinChem: A Computational Resource for Teaching and Learning Chemical Kinetics José Nunes da Silva Júnior, Mary Anne Sousa Lima, Eduardo Henrique Silva Sousa, Francisco Serra Oliveira Alexandre, and Antonio José Melo Leite Júnior, J. Chem. Educ., 2014, 91 (12), pp 2203–2205 DOI: 10.1021/ed500433c
  - From Voltage to Absorbance and Chemical Kinetics Using a Homemade Colorimeter Jorge Delgado, Iraís A. Quintero-Ortega, and Arturo Vega-Gonzalez, J. Chem. Educ., 2014, 91 (12), pp 2158–2162 DOI: 10.1021/ed400813c
  - X-ray Crystallography: One Century of Nobel Prizes Simona Galli, J. Chem. Educ., 2014, 91 (12), pp 2009–2012 DOI: 10.1021/ed500343x
- novembre
  - Developing and Implementing a Simple, Affordable Hydrogen Fuel Cell Laboratory in

Introductory Chemistry Kristina Klara, Ning Hou, Allison Lawman, Liheng Wu, Drew Morrill, Alfred Tente, and Li-Qiong Wang, J. Chem. Educ., 2014, 91 (11), pp 1924–1928 DOI: 10.1021/ed4007875
    - Fostering Innovation through an Active Learning Activity Inspired by the Baghdad Battery Xu Lu and Franklin Anariba, J. Chem. Educ., 2014, 91 (11), pp 1929–1933 DOI: 10.1021/ed400869c
    - Using Paperclips To Explain Empirical Formulas to Students Peter Nassiff and Wendy A. Czerwinski, J. Chem. Educ., 2014, 91 (11), pp 1934–1938 DOI: 10.1021/ed4008793
    - Field and In-Lab Determination of Ca2+ in Seawater Robin Stoodley, Jose R. Rodriguez Nuñez, and Tessa Bartz, J. Chem. Educ., 2014, 91 (11), pp 1954–1957 DOI: 10.1021/ed4005722
- octobre
    - Evidence-Based Approaches to Improving Chemical Equilibrium InstructionJodi L. Davenport, Gaea Leinhardt, James Greeno, Kenneth Koedinger, David Klahr, Michael Karabinos, and David J. Yaron, J. Chem. Educ., 2014, 91 (10), pp 1517–1525 DOI: 10.1021/ed5002009
    - Conflicts in Chemistry: The Case of Plastics, A Role-Playing Game for High School Chemistry Students Deborah H. Cook J. Chem. Educ., 2014, 91 (10), pp 1580–1586 DOI: 10.1021/ed4007277
    - Using the Socioscientific Context of Climate Change To Teach Chemical Content and the Nature of Science Charity Flener-Lovitt, J. Chem. Educ., 2014, 91 (10), pp 1587–1593 DOI: 10.1021/ed4006985
    - Polymer Basics: Classroom Activities Manipulating Paper Clips To Introduce the Structures and Properties of Polymers Yunusa Umar, J. Chem. Educ., 2014, 91 (10), pp 1667–1670 DOI: 10.1021/ed400551c
- septembre - september 2014, special “AP chemistry curriculum framework”
    - Integrating “Big Ideas” with a Traditional Topic Sequence in the AP Chemistry Course: First Steps Christopher Kennedy, J. Chem. Educ., 2014, 91 (9), pp 1280–1283 DOI: 10.1021/ed5000263
    - How the Chemistry Modeling Curriculum Engages Students in Seven Science Practices Outlined by the College Board Erica Posthuma-Adams, J. Chem. Educ., 2014, 91 (9), pp 1284–1290 DOI: 10.1021/ed400911a
    - Integrating Particulate Representations into AP Chemistry and Introductory Chemistry Courses Stephen G. Prilliman, J. Chem. Educ., 2014, 91 (9), pp 1291–1298 DOI: 10.1021/ed5000197
    - Effects of the Flipped Classroom Model on Student Performance for Advanced Placement High School Chemistry Students David Schultz, Stacy Duffield, Seth C. Rasmussen, and Justin Wageman, J. Chem. Educ., 2014, 91 (9), pp 1334–1339 DOI: 10.1021/ed400868x
    - The New AP Chemistry Exam: Its Rationale, Content, and Scoring Paul D. Price and Roger W. Kugel, J. Chem. Educ., 2014, 91 (9), pp 1340–1346 DOI: 10.1021/ed500034t
    - Guide To Developing High-Quality, Reliable, and Valid Multiple-Choice Assessments Marcy H. Towns, J. Chem. Educ., 2014 91 (9), pp 1426–1431 DOI: 10.1021/ed500076x (article ACS Editors' Choice open access).
- août
    - Chemistry Education: Ten Heuristics To Tame Vicente Talanquer, J. Chem. Educ., 2014, 91 (8), pp 1091–1097 DOI: 10.1021/ed4008765
    - The Kimball Free-Cloud Model: A Failed Innovation in Chemical Education? William B. Jensen, J. Chem. Educ., 2014, 91 (8), pp 1106–1124 DOI: 10.1021/ed400341d
    - The Development of the Redox Concept Inventory as a Measure of Students’ Symbolic and Particulate Redox Understandings and Confidence Alexandra R. Brandriet and Stacey Lowery Bretz, J. Chem. Educ., 2014, 91 (8), pp 1132–1144 DOI: 10.1021/ed500051n

    - A Simple Educational Method for the Measurement of Liquid Binary Diffusivities Nicholas P. Rice, Martin P. de Beer, and Mark E. Williamson, J. Chem. Educ., 2014, 91 (8), pp 1185–1190 DOI: 10.1021/ed400776s
    - PhET Interactive Simulations: Transformative Tools for Teaching Chemistry Emily B. Moore, Julia M. Chamberlain, Robert Parson, and Katherine K. Perkins, J. Chem. Educ., 2014, 91 (8), pp 1191–1197 DOI: 10.1021/ed4005084
    - A Discovery Chemistry Experiment on Buffers Suzanne E. Kulevich, Richard S. Herrick, and Kenneth V. Mills, J. Chem. Educ., 2014, 91 (8), pp 1207–1211 DOI: 10.1021/ed400377a
- juillet
    - Differences in General Cognitive Abilities and Domain-Specific Skills of Higher- and Lower-Achieving Students in Stoichiometry Ozcan Gulacar, Ingo Eilks, and Charles R. Bowman, J. Chem. Educ., 2014, 91 (7), pp 961–968 DOI: 10.1021/ed400894b
- juin
    - Development of a Handmade Conductivity Measurement Apparatus and Application to Vegetables and Fruits Seng Set and Masakazu Kita, J. Chem. Educ., 2014, 91 (6), pp 892–897 DOI: 10.1021/ed400611q
    - An Effective Method of Introducing the Periodic Table as a Crossword Puzzle at the High School Level Sushama D. Joag, J. Chem. Educ., 2014, 91 (6), pp 864–867 DOI: 10.1021/ed400091w
- mai
    - Open-Source Electronics As a Technological Aid in Chemical Education Pawel L. Urban, J. Chem. Educ., 2014, 91 (5), pp 751–752 DOI: 10.1021/ed4009073 (+ ce site)
    - Construction of a Photometer as an Instructional Tool for Electronics and Instrumentation Robert L. McClain, J. Chem. Educ., 2014, 91 (5), pp 747–750 DOI: 10.1021/ed400784x
    - Application of the Second Law of Thermodynamics To Explain the Working of Toys Erick Castellón, J. Chem. Educ., 2014, 91 (5), pp 687–691 DOI: 10.1021/ed400085z
    - Using Audience Response Systems during Interactive Lectures To Promote Active Learning and Conceptual Understanding of Stoichiometry Sandra Cotes and José Cotuá, J. Chem. Educ., 2014, 91 (5), pp 673–677 DOI: 10.1021/ed400111m
    - Evaluating the Content and Response Process Validity of Data from the Chemical Concepts Inventory Paul Schwartz and Jack Barbera, Journal of Chemical Education 2014, 91 (5), 630-640. DOI: 10.1021/ed400716p
- avril
    - The Aqueous Proton Is Hydrated by More Than One Water Molecule: Is the Hydronium Ion a Useful Concept? Todd P. Silverstein, J. Chem. Educ., 2014, 91 (4), pp 08–610 DOI: 10.1021/ed400559t (cf. aussi cet article, wp1 et wp2)
    - Use of Freely Available and Open Source Tools for In Silico Screening in Chemical Biology Gareth W. Price, Phillip S. Gould, and Andrew Marsh, J. Chem. Educ., 2014, 91 (4), pp 602–604 DOI: 10.1021/ed400302u
    - Synthesis, Dehydration, and Rehydration of Calcium Sulfate (Gypsum, Plaster of Paris) Gergely Sirokman, J. Chem. Educ., 2014, 91 (4), pp 557–559 DOI: 10.1021/ed400004b (TP)
    - General Procedure for the Easy Calculation of pH in an Introductory Course of General or Analytical Chemistry Gemma Cepriá and Luis Salvatella, J. Chem. Educ., 2014, 91 (4), pp 524–530 DOI: 10.1021/ed400089j
- mars
    - Quantifying the Soda Geyser Christopher J. Huber and Aaron M. Massari, J. Chem. Educ., 2014, 91 (3), pp 428–431 DOI: 10.1021/ed300694n
    - Unpacking the Meaning of the Mole Concept for Secondary School Teachers and Students Su-Chi Fang, Christina Hart, and David Clarke, J. Chem. Educ., 2014, 91 (3), pp 351–356 DOI: 10.1021/ed400128x

    - The Biology and Chemistry of Brewing: An Interdisciplinary Course Paul D. Hooker, William A. Deutschman, and Brian J. Avery, J. Chem. Educ., 2014, 91 (3), pp 336–339 DOI: 10.1021/ed400523m
    - SQER3: An Instructional Framework for Using Scientific Inquiry To Design Classroom Demonstrations Donna M. Chamely-Wiik, Jerome E. Haky, Deborah W. Louda, and Nancy Romance, J. Chem. Educ., 2014, 91 (3), pp 329–335 DOI: 10.1021/ed300689n (yc questionnement conductivité boisson énergisante)
    - Development of the Bonding Representations Inventory To Identify Student Misconceptions about Covalent and Ionic Bonding Representations Cynthia J. Luxford and Stacey Lowery Bretz, J. Chem. Educ., 2014, 91 (3), pp 312–320, ET **Article ASAP & ACS Editors' Choice** DOI: 10.1021/ed400700q
- février
    - ZnO-Based Sunscreen: The Perfect Example To Introduce Nanoparticles in an Undergraduate or High School Chemistry Lab Wanda J. Guedens, Monique Reynders, Heidi Van den Rul, Ken Elen, An Hardy, and Marlies K. Van Bael, J. Chem. Educ., 2014, 91 (2), pp 259–263 DOI: 10.1021/ed300851a
    - A New Higher Education Curriculum in Organic Chemistry: What Questions Should Be Asked? David L. Lafarge, Ludovic M. Morge, and Martine M. Méheut, J. Chem. Educ., 2014, 91 (2), pp 173–178 DOI: 10.1021/ed300746e + cette thèse
    - Alcohol Pharmacology Education Partnership: Using Chemistry and Biology Concepts To Educate High School Students about Alcohol Elizabeth A. Godin, Nicole Kwiek, Suzanne S. Sikes, Myra J. Halpin, Carolyn A. Weinbaum, Lane F. Burgette, Jerome P. Reiter, and Rochelle D. Schwartz-Bloom, J. Chem. Educ., 2014, 91 (2), pp 165–172 DOI: 10.1021/ed4000958
- janvier
    - Chemistry in Past and New Science Frameworks and Standards: Gains, Losses, and Missed Opportunities Vicente Talanquer and Hannah Sevian, J. Chem. Educ., 2014, 91 (1), pp 24–29 DOI: 10.1021/ed400134c
    - A Teaching Sequence for Learning the Concept of Chemical Equilibrium in Secondary School Education Marco Ghirardi, Fabio Marchetti, Claudio Pettinari, Alberto Regis, and Ezio Roletto, J. Chem. Educ., 2014, 91 (1), pp 59–65 DOI: 10.1021/ed3002336
    - Using Paper-Based Diagnostics with High School Students To Model Forensic Investigation and Colorimetric Analysis Rebekah R. Ravgiala, Stefi Weisburd, Raymond Sleeper, Andres Martinez, Dorota Rozkiewicz, George M. Whitesides, and Kathryn A. Hollar, J. Chem. Educ., 2014, 91 (1), pp 107–111 DOI: 10.1021/ed300261a
    - Microfluidics for High School Chemistry Students Melissa Hemling, John A. Crooks, Piercen M. Oliver, Katie Brenner, Jennifer Gilbertson, George C. Lisensky, and Douglas B. Weibel, J. Chem. Educ., 2014, 91 (1), pp 112–115 DOI: 10.1021/ed4003018

## 2013

- Décembre
    - How Multimedia-Based Learning and Molecular Visualization Change the Landscape of Chemical Education Research Loretta L. Jones, J. Chem. Educ., 2013, 90 (12), pp 1571–1576 DOI: 10.1021/ed4001206
    - Using Ordered Multiple-Choice Items To Assess Students' Understanding of the Structure and Composition of Matter Jan C. Hadenfeldt, Sascha Bernholt, Xiufeng Liu, Knut Neumann, and Ilka Parchmann, J. Chem. Educ., 2013, 90 (12), pp 1602–1608 DOI: 10.1021/ed3006192
    - Roles of Terminology, Experience, and Energy Concepts in Student Conceptions of

Freezing and Boiling Paul G. Jasien , J. Chem. Educ., 2013, 90 (12), pp 1609–1615 DOI: 10.1021/ed2007668
    - What Do Chemists Mean When They Talk about Elements? Elena Ghibaudi, Alberto Regis, and Ezio Roletto, J. Chem. Educ., 2013, 90 (12), pp 1626–1631 DOI: 10.1021/ed3004275
    - Solution Preparation and Conductivity Measurements: An Experiment for Introductory Chemistry Zeynep Eslek and Aysen Tulpar, J. Chem. Educ., 2013, 90 (12), pp 1665–1667 DOI: 10.1021/ed300593t
    - Following Precipitation Reactions with Conductivity Measurements Zeynep Eslek and Aysen Tulpar, J. Chem. Educ., 2013, 90 (12), pp 1668–1670 DOI: 10.1021/ed300594
- Novembre
    - When Atoms Want Vicente Talanquer, J. Chem. Educ., 2013, 90 (11), pp 1419–1424 DOI: 10.1021/ed400311x
    - Climate Change: A Demonstration with a Teaching Moment Steven Murov, J. Chem. Educ., 2013, 90 (11), pp 1486–1487 DOI: 10.1021/ed400363u
- Octobre
    - Easy Demonstration of the Marangoni Effect by Prolonged and Directional Motion: “Soap Boat 2.0” Charles Renney, Ashley Brewer, and Tiddo Jonathan Mooibroek J. Chem. Educ., 2013, 90 (10), pp 1353–1357 DOI: 10.1021/ed400316a
    - An Open-Ended Project: Building a High Performance, yet Simple, Household Battery Ping Y. Furlan, Thomas Krupa, Humza Naqiv, and Kyle Anderson, J. Chem. Educ., 2013, 90 (10), pp 1341–1345 DOI: 10.1021/ed4000603
    - Polytomous versus Dichotomous Scoring on Multiple-Choice Examinations: Development of a Rubric for Rating Partial Credit Megan L. Grunert, Jeffrey R. Raker, Kristen L. Murphy, and Thomas A. Holme, J. Chem. Educ., 2013, 90 (10), pp 1310–1315, DOI: 10.1021/ed400247d
- Septembre
    - Building Molecular Models Using Screw-On Bottle Caps Dawid Siodłak, J. Chem. Educ., 2013, 90 (9), pp 1247–1249 DOI: 10.1021/ed400126p
    - Introducing Colorimetric Analysis with Camera Phones and Digital Cameras: An Activity for High School or General Chemistry Eric Kehoe and R. Lee Penn, J. Chem. Educ., 2013, 90 (9), pp 1191–1195 DOI: 10.1021/ed300567p
    - Changing the First-Year Chemistry Laboratory Manual To Implement a Problem-Based Approach That Improves Student Engagement Thamara Laredo, J. Chem. Educ., 2013, 90 (9), pp 1151–1154 DOI: 10.1021/ed300313m
    - A Process for Developing Introductory Science Laboratory Learning Goals To Enhance Student Learning and Instructional Alignment Jennifer M. Duis, Laurel L. Schafer, Sophia Nussbaum, and Jaclyn J. Stewart, J. Chem. Educ., 2013, 90 (9), pp 1144–1150 DOI: 10.1021/ed4000102
    - Chemistry, Life, the Universe, and Everything: A New Approach to General Chemistry, and a Model for Curriculum Reform Melanie Cooper and Michael Klymkowsky, J. Chem. Educ., 2013, 90 (9), pp 1116–1122 DOI: 10.1021/ed300456y
- Août
    - Fastest Fingers: A Molecule-Building Game for Teaching Organic Chemistry Michael L. Eastwood, J. Chem. Educ., 2013, 90 (8), pp 1038–1041 DOI: 10.1021/ed3004462
    - The Color-Changing Sports Drink: An Ingestible Demonstration Rhonda L. Stoddard and J. Scott McIndoe, J. Chem. Educ., 2013, 90 (8), pp 1032–1034 DOI: 10.1021/ed3007346
    - Discovering Periodicity: Hands-On, Minds-On Organization of the Periodic Table by Visualizing the Unseen Jodye Selco, Mary Bruno, and Sue Chan, J. Chem. Educ., 2013, 90 (8), pp 995–1002 DOI: 10.1021/ed300623b
    - Effect of Teaching Metacognitive Learning Strategies on Performance in General Chemistry Courses Elzbieta Cook, Eugene Kennedy, and Saundra Y. McGuire J. Chem.

Educ., 2013, 90 (8), pp 961–967 DOI: 10.1021/ed300686h

- Juillet
  - The Method of Continuous Variation: A Laboratory Investigation of the Formula of a Precipitate William R. Furlong , Miles A. Rubinski , and Ramee Indralingam, J. Chem. Educ., 2013, 90 (7), pp 937–940 DOI: 10.1021/ed3004337
  - Fact or Fiction? General Chemistry Helps Students Determine the Legitimacy of Television Program Situations Mark A. Milanick and Ruth L. Prewitt, J. Chem. Educ., 2013, 90 (7), pp 904–906 DOI: 10.1021/ed300155p
  - Incorporating a Soap Industry Case Study To Motivate and Engage Students in the Chemistry of Daily Life Mohammad A. Chowdhury, J. Chem. Educ., 2013, 90 (7), pp 866–872 DOI: 10.1021/ed300072e
  - Chemistry Education: Ten Facets To Shape Us Vicente Talanquer, J. Chem. Educ., 2013, 90 (7), pp 832–838 DOI: 10.1021/ed300881v
- Juin
  - Plant Pigment Identification: A Classroom and Outreach Activity Kathleen C. A. Garber et al J. Chem. Educ., 2013, 90 (6), pp 755–759 DOI: 10.1021/ed200823t
  - Concept Learning versus Problem Solving: Evaluating a Threat to the Validity of a Particulate Gas Law Question Michael J. Sangern C. Kevin Vaughn , and David A. Binkley J. Chem. Educ., 2013, 90 (6), pp 700–709 DOI: 10.1021/ed200809a
  - Chemistry and the Next Generation Science Standards, Melanie M. Cooper, J. Chem. Educ., 2013, 90 (6), pp 679–680 DOI: 10.1021/ed400284c
- Mai
- Avril
  - Sustainable Mobility, Future Fuels, and the Periodic Table, Timothy J. Wallington et al, J. Chem. Educ., 2013, 90 (4), pp 440–445 DOI: 10.1021/ed3004269
- Mars
  - Opera and Poison: A Secret and Enjoyable Approach To Teaching and Learning Chemistry, João Paulo André, J. Chem. Educ., 2013, 90 (3), pp 352–357 DOI: 10.1021/ed300445b
  - Chemistry on the Go: Review of Chemistry Apps on Smartphones, Diana Libman and Ling Huang, J. Chem. Educ., 2013, 90 (3), pp 320–325 DOI: 10.1021/ed300329e
  - What Faculty Interviews Reveal about Meaningful Learning in the Undergraduate Chemistry Laboratory Stacey Lowery Bretz, Michael Fay, Laura B. Bruck, Marcy H. Towns, J. Chem. Educ. 2013, 90(3), 281-288 DOI: 10.1021/ed300384r
- février
- janvier
  - A Comprehensive General Chemistry Demonstration, Ryan D. Sweeder and Kathleen A. Jeffery, J. Chem. Educ., 2013, 90 (1), pp 96–98 DOI: 10.1021/ed300367y

Les plus lus en 2013 :

- Cyclic voltammetry, Peter T. Kissinger, William R. Heineman, DOI: 10.1021ed060p702
- A Guide to the Elements (Stwertka, Albert) Daniel Berger DOI: 10.1021/ed074p627.1
- Opera and Poison: A Secret and Enjoyable Approach To Teaching and Learning Chemistry, Jo o Paulo Andr DOI: 10.1021/ed300445b
- Chemistry on the Go: Review of Chemistry Apps on Smartphones, Diana Libman, Ling Huang DOI: 10.1021/ed300329e
- Aerobic Alcohol Oxidation Using a Copper(I)/TEMPO Catalyst System: A Green, Catalytic Oxidation Reaction for the Undergraduate Organic Chemistry Laboratory, Nicholas J. Hill, Jessica M. Hoover, Shannon S. Stahl, DOI: 10.1021/ed300368q
- Chemistry and the Next Generation Science Standards, Melanie M. Cooper DOI: 10.1021/ed400284c

- A Comprehensive General Chemistry Demonstration, Ryan D. Sweeder, Kathleen A. Jeffery DOI: 10.1021/ed300367y
- Online Courses in Chemistry: Salvation or Downfall?, Norbert J. Pienta DOI: 10.1021/ed400097s
- Beer's law without calculus, Richard C. Pinkerton DOI: 10.1021/ed041p366
- Learning Chemistry for an Exciting (and Uncertain) Future, Catherine H. Middlecamp DOI: 10.1021/ed400078m

## 2012

- Chemistry Education: Ten Dichotomies We Live By, Vicente Talanquer, J. Chem. Educ., 2012, 89 (11), pp 1340–1344 DOI: 10.1021/ed300150r
- We Need To Update the Teaching of Valence Theory, Huw O. Pritchard, J. Chem. Educ., 2012, 89 (3), pp 301–303 DOI: 10.1021/ed2004752

## 2011

- My Acid Can Beat Up Your Acid! Alice Putti J. Chem. Educ., 2011, 88 (9), pp 1278–1280 DOI: 10.1021/ed100849b
- What Can Be Learned from Laboratory Activities? Revisiting 32 Years of Research Michael R. Abraham, J. Chem. Educ., 2011, 88 (8), pp 1020–1025 DOI: 10.1021/ed100774d
- What’s the Diagnosis? An Inquiry-Based Activity Focusing on Mole−Mass Conversions Laura B. Bruck, Marcy H. Towns, J. Chem. Educ. 2011, 88(4), 440-442 DOI: 10.1021/ed100466j

## 2010

- You Can’t Get There from Here A. H. Johnstone, J. Chem. Educ. 2010, 87, 1, 22–29 DOI: 10.1021/ed800026d

## 2009

- Chemistry in the National Science Education Standards: Models for Meaningful Learning in the High School Chemistry Classroom, 2nd Edition (Stacey Lowery Bretz, Ed.), book review, J. Chem. Educ. 2009, 86(4), 435 DOI: 10.1021/ed086p435

## 2008

- Teaching Avogadro's Hypothesis and Helping Students to See the World Differently Brett Criswell, J. Chem. Educ., 2008, 85 (10), p 1372 DOI: 10.1021/ed085p1372
- The Chemical Adventures of Sherlock Holmes: The Serpentine Remains Ken Shaw, J. Chem. Educ., 2008, 85 (4), p 507 DOI: 10.1021/ed085p507

## 2007

- Mistake of Having Students Be Mendeleev for Just a Day, Brett Criswell, J. Chem. Educ., 2007, 84 (7), p 1140 DOI: 10.1021/ed084p1140

## 2006

- Negative pH Does Exist Kieran F. Lim, J. Chem. Educ., 2006, 83 (10), p 1465 DOI: 10.1021/ed083p1465
- Using a Spreadsheet to Fit Experimental pH Titration Data to a Theoretical Expression: Estimation of Analyte Concentration and Ka John Burnett and William A. Burns, J. Chem. Educ. 2006, 83, 8, 1190 DOI: 10.1021/ed083p1190
- Give Them Money: The Boltzmann Game, a Classroom or Laboratory Activity Modeling Entropy Changes and the Distribution of Energy in Chemical Systems Bridget Michalek, Robert M. Hanson, J. Chem. Educ., 2006, 83 (4), p 581 DOI: 10.1021/ed083p581

## 2005

- Equilibrium Constants and Water Activity David Keeports, J. Chem. Educ., 2005, 82 (7), p 999 DOI: 10.1021/ed082p999
- Evaluating Students' Conceptual Understanding of Balanced Equations and Stoichiometric Ratios Using a Particulate Drawing Michael J. Sanger, J. Chem. Educ., 2005, 82 (1), p 131 DOI: 10.1021/ed082p131

## 2004

- Critical Thinking in the Chemistry Classroom and Beyond Claus Jacob , J. Chem. Educ. 2004, 81, 8, 1216 DOI: 10.1021/ed081p1216

## 2002

- An Inventory for Alternate Conceptions among First-Semester General Chemistry Students Douglas R. Mulford & William R. Robinson, J. Chem. Educ., 2002, 79 (6), p 739 DOI: 10.1021/ed079p739 (y compris **tests**)

## 2000

- Developing an Intuitive Approach to Moles Hans de Grys, Dawn M. Wakeley, J. Chem. Educ. 2000, 77(8), 1007 DOI: 10.1021/ed077p1007
- Illustrating thermodynamic concepts using a hero's engine Pedro L. Muiño, and James R. Hodgson, J. Chem. Educ., 2000, 77 (5), p 615 DOI: 10.1021/ed077p615
- A quantitative literature review of cooperative learning effects on high school and college chemistry achievement Bowen, C., J. Chem. Educ. 2000, 77(1), 116– 119 DOI: 10.1021/ed077p116

## 1999

- A Review of Laboratory Instruction Styles Daniel S. Domin, J. Chem. Educ., 1999, 76 (4), p 543 DOI: 10.1021/ed076p543
- Improving Teaching and Learning through Chemistry Education Research: A Look to the Future Dorothy Gabel, J. Chem. Educ., 1999, 76 (4), p 548 DOI: 10.1021/ed076p548

- The Complexity of Teaching and Learning Chemical Equilibrium Louise Tyson, David F. Treagust, Robert B. Bucat, J. Chem. Educ. 1999, 76(4), 554 DOI: 10.1021/ed076p554

## 1998

- Demonstrations of the Enormity of Avogadro's Number Damon Diemente, J. Chem. Educ. 1998, 75(12), 1565 DOI: 10.1021/ed075p1565

## 1997

- Research in Chemical Education - the Third Branch of Our Profession Journal of Chemical Education 1997, 74 (9) , 1076. DOI: 10.1021/ed074p1076
- Buffer Index and Buffer Capacity for a Simple Buffer Solution Veronica Chiriac, and Gabriel Balea, J. Chem. Educ., 1997, 74 (8), p 937 DOI: 10.1021/ed074p937
- Turkish Secondary Students' Conceptions of the Introductory Concepts Alipasa Ayas, Ayhan Demirbas, J. Chem. Educ. 1997, 74(5), 518 DOI: 10.1021/ed074p518

## 1996

- What's a Mole for? Sheryl Dominic, J. Chem. Educ. 1996, 73(4), 309 DOI: 10.1021/ed073p309
- The Size of a Mole Miriam Toloudis, J. Chem. Educ. 1996, 73(4), 348 DOI: 10.1021/ed073p348

## 1994

- The Mole Concept: Developing an Instrument To Assess Conceptual Understanding Shanthi R. Krishnan Ann C. Howe, J. Chem. Educ. 1994, 71(8), 653 DOI: 10.1021/ed071p653

## 1993

- A mole of M&M's Carmela Merlo, Kathleen E. Turner, J. Chem. Educ., 1993, 70(6), 453 DOI: 10.1021/ed070p453

## 1992

- A mole of salt crystals—Or how big is the Avogadro number? William Hoyt, J. Chem. Educ., 1992, 69(6), 496 DOI: 10.1021/ed069p496

## 1991

- The critical point and the number of degrees of freedom Rubin Battino, J. Chem. Educ. 1991, 68, 4, 276 DOI: 10.1021/ed068p276
- A mole mnemonic Bernard S. Brown, J. Chem. educ. 1991, 68(12), 1039 DOI: 10.1021/ed068p1039.2

## 1990

- Concept learning versus problem solving: Revisited Barbara A. Sawrey, J. Chem. Educ. 1990, 67(3), 253 DOI: 10.1021/ed067p253
- A proposition about the quantity of which mole is the SI unit Romeu C. Rocha-Filho, J. Chem. Educ. 1990, 67(2), 139 DOI: 10.1021/ed067p139

## 1989

- How to visualize Avogadro's number Henk van Lubeck, J. Chem. Educ., 1989, 66(9), 762 DOI: 10.1021/ed066p762

## 1987

- Concept learning versus problem solving: Is there a difference? Susan C. Nurrenbern, Miles Pickering, J. Chem. Educ. 1987, 64(6), 508 DOI: 10.1021/ed064p508

## 1986

- Analogies for Avogadro's number Paul S. Poskozim, James W. Wazorick, Permsook Tiempetpaisal, Joyce Albin Poskozim, J. Chem. Educ. 1986, 63(2), 125 DOI: 10.1021/ed063p125

## 1985

- Gram formula weights and fruit salad Wayne L. Felty, J. Chem. Educ. 1985, 62(1), 61 DOI: 10.1021/ed062p61.1
- Five Avogadro's number problems David Todd, J. Chem. Educ. 1985, 62(1), 76 DOI: 10.1021/ed062p76

## 1984

- Abegg, Lewis, Langmuir, and the octet rule William B. Jensen, J. Chem. Educ., 1984, 61 (3), p 191 DOI: 10.1021/ed061p191

## 1982

- Investigation of secondary school students' understanding of the mole concept in Italy R. Cervellati A. Montuschi D. Perugini N. Grimellini-Tomasini B. Pecori Balandi, J. Chem. Educ. 1982, 59(10), 852 DOI: 10.1021/ed059p852
- "Chemical Amount" or "Chemiance": Proposed names for the quantity measured in mole units George Gorin, J. Chem. Educ. 1982, 59(6), 508 DOI: 10.1021/ed059p508

## 1978

- The mole Doris Kolb, J. Chem. Educ., 1978, 55(11), 728 DOI: 10.1021/ed055p728

### 1976

- A study of student perceptions of the mole concept S. Novick J. Menis, J. Chem. Educ. 1976, 53(11) 720 DOI: 10.1021/ed053p720

### 1975

- Piaget for chemists. Explaining what "good" students cannot understand J. Dudley Herron J. Chem. Educ., 1975, 52 (3), p 146 DOI: 10.1021/ed052p146 **article d'intérêt didactique**

### 1973

- The mole and Avogadro's number. A forced fusion of ideas for teaching purposes Robert M. Hawthorne Jr., J. Chem. Educ., 1973, 50(4), 282 DOI: 10.1021/ed050p282

### 1961

- The mole and related quantities E. A. Guggenheim, J. Chem. Educ., 1961, 38(2), 86 DOI: 10.1021/ed038p86

### 1952

- A simple demonstration of the Carnot cycle George Calingaert, J. Chem. Educ., 1952, 29 (8), p 405 DOI: 10.1021/ed029p405

### 1929

- Some methods of determining Avogadro's number Arthur A. Sunier, J. Chem. Educ. 1929,6(2), 299 DOI: 10.1021/ed006p299

---

## Parmis les plus lus entre juillet et septembre 2012

- Articles
  - Orbitals: Some Fiction and Some Facts, Jochen Autschbach (DOI: 10.1021/ed200673w)
  - Put Some Movie Wow! in Your Chemistry Teaching, Christopher A. Frey, Marjorie L. Mikasen, Mark A. Griep (DOI: 10.1021/ed300092t)
  - Synthesis and Study of Silver Nanoparticles, Lorraine Mulfinger, Sally D. Solomon, Mozghan Bahadory, Aravindan V. Jeyarajasingam, Susan A. Rutkowsky, Charles Boritz (DOI: 10.1021/ed084p322)
- Editorials
  - Share the Wonder, Deanna M. Cullen (DOI: 10.1021/ed300459v)

    - What We Do and Don't Know about Teaching and Learning Science: The National Research Council Weighs in on Discipline-Based Education Research, Norbert J. Pienta (DOI: 10.1021/ed300354t)
    - Cutting-Edge and Cross-Cutting: Connecting the Dots between Nanotechnology and High School Chemistry, Gregory T. Rushton, Brett A. Criswell (DOI: 10.1021/ed300531k)
- Commentary
    - JCE Classroom Activities Virtual Issue: Celebrating 15 Years with the 15 Greatest Hits, 1997-2012, Erica K. Jacobsen (DOI: 10.1021/ed300347g)
    - 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)
- Letters
    - The Misinterpretation of Entropy as "Disorder", Frank L. Lambert (DOI: 10.1021/ed2002708)
    - Falling Enzyme Activity as Temperature Rises: Negative Activation Energy or Denaturation?, Todd P. Silverstein (DOI: 10.1021/ed200497r)
    - Retire the Hybrid Atomic Orbital? Not So Fast, Nivaldo J. Tro (DOI: 10.1021/ed2006289)
- Classroom Activities
    - JCE Classroom Activity #105. A Sticky Situation: Chewing Gum and Solubility, Ingrid Montes-González, Jose A. Cintron-Maldonado, Ilia E. Pérez-Medina, Verónica Montes-Berríos, Saurie N. Román-López (DOI: 10.1021/ed800135j)
    - Color My Nanoworld, Adam D. McFarland, Christy L. Haynes, Chad A. Mirkin, Richard P. Van Duyne, Hilary A. Godwin (DOI: 10.1021/ed081p544A)
    - JCE Classroom Activity #112: Guessing the Number of Candies in the Jar-Who Needs Guessing?, Stephanie Ryan, Donald J. Wink (DOI: 10.1021/ed1009943)
- Laboratory Experiments
    - Preparation of Gold Nanoparticles Using Tea: A Green Chemistry Experiment, R. K. Sharma, Shikha Gulati, Shilpa Mehtan (DOI: 10.1021/ed2002175)
    - Evaluating Sustainability: Soap versus Biodiesel Production from Plant Oils, Nicola L. B. Pohl, Jennifer M. Streff, Steve Brokman (DOI: 10.1021/ed100451d)
    - Discovering 13C NMR, 1H NMR, and IR Spectroscopy in the General Chemistry Laboratory through a Sequence of Guided-Inquiry Exercises, H. Darrell Iler, David Justice, Shari Brauer, Amanda Landis (DOI: 10.1021/ed2005664)
- Book & Media Reviews
    - Review of Letters to a Young Chemist, Sarai Flynn, Markel Harris, Luis D. Montes (DOI: 10.1021/ed3003397)
    - Review of A Student's Guide to Data and Error Analysis, Lawton Shaw (DOI: 10.1021/ed300332s)
    - Review of Nature of Science in General Chemistry Textbooks, Thomas A. Holme (DOI: 10.1021/ed300372y)

## Parmis les plus lus entre lus entre avril et juin 2012

- Articles
    - Beer as a Teaching Aid in the Classroom and Laboratory, Jasminka N. Korolija, Jovica V. Plavsic, Dragan Marinkovic, Ljuba M. Mandic
    - 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
  - The Misinterpretation of Entropy as “Disorder”, Frank L. Lambert
  - Retire the Hybrid Atomic Orbital? Not So Fast, Nivaldo J. Tro
    - En réponse à l'article Is It Time To Retire the Hybrid Atomic Orbital? de Alexander Grushow
  - Replace Band Theory in Introductory Chemistry, Stephen J. Hawkes
- Editorials
  - Navigating the Landscape of Assessment, Stacey Lowery Bretz
  - What Do You Do? I Teach Chemistry!, Gregory T. Rushton
  - Improving High School Chemistry Teaching via the “Trickle Up” Effect: A Perspective on the New AP Chemistry Curriculum Framework, Gregory T. Rushton
- 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
- Laboratory Experiments
  - Isolation and Analysis of Essential Oils from Spices, Stephen K. O’Shea, Daniel D. Von Riesen, and Lauren L. Rossi
  - Synthesis of Two Local Anesthetics from Toluene: An Organic Multistep Synthesis in a Project-Oriented Laboratory Course, Patricia Demare and Ignacio Regla
  - Galvanic Cells and the Determination of Equilibrium Constants, Jonathan L. Brosmer and Dennis G. Peters

## "classroom activities" les plus populaires des 15 dernières années (1997-2012)

- JCE Classroom Activities Virtual Issue: Celebrating 15 Years with the 15 Greatest Hits, 1997–2012, Erica K. Jacobsen
- 62 Color My Nanoworld, A. D. McFarland, C. L. Haynes, C. A. Mirkin, R. P. Van Duyne, H. A. Godwin
- 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
- 107 And the Oscar Goes to...A Chemist!, C. R. Howder, K. D. Groen, T. S. Kuntzleman
- 108 Using Archimedes’ Principle To Explain Floating and Sinking Cans, M. J. Sanger
- 104 A Novel, Simplified Scheme for Plastics Identification, M. E. Harris, B. Walker
- 109 My Acid Can Beat Up Your Acid!, A. Putti
- 73 Colors in Liquid Crystals, G. Lisensky, E. Boatman
- 103 Enjoy a Hot Drink, Thanks to Chemistry!, G. Pinto, M. T. Oliver-Hoyo, J. A. Llorens-Molina
- 93 Aluminum—Air Battery, M. Tamez, J. H. Yu

- 100 How Heavy Is a Balloon? Using the Ideal Gas Law, B. O. Johnson, H. Van Milligan
- 41 Tick Tock, a Vitamin C Clock, S. W. Wright
- 91 Fluorescent Fun: Using a Homemade Fluorometer, M. F. Wahab

## Forensic Chemistry Resources from the Journal of Chemical Education

### Solving a Mystery

- The Chemical Adventures of Sherlock Holmes: Sherlock Holmes Goes Virtual, Erica K. Jacobsen, Journal of Chemical Education 2011 88 (4), 368-369 DOI: 10.1021/ed200021z
- Crime Scene Investigation in the Art World: The Case of the Missing Masterpiece, Katharine J. Harmon, Lisa M. Miller, and Julie T. Millard Journal of Chemical Education 2009 86 (7), 817 DOI: 10.1021/ed086p817
- Activities for Middle School Students To Sleuth a Chemistry “Whodunit” and Investigate the Scientific Method, Audrey F. Meyer, Cassandra M. Knutson, Solaire A. Finkenstaedt-Quinn, Sarah M. Gruba, Ben M. Meyer, John W. Thompson, Melissa A. Maurer-Jones, Sharon Halderman, Ayesha S. Tillman, Lizanne DeStefano, and Christy L. Haynes, Journal of Chemical Education 2014 91 (3), 410-413 DOI: 10.1021/ed4006562
- Using Paper-Based Diagnostics with High School Students To Model Forensic Investigation and Colorimetric Analysis, Rebekah R. Ravgiala, Stefi Weisburd, Raymond Sleeper, Andres Martinez, Dorota Rozkiewicz, George M. Whitesides, and Kathryn A. Hollar, Journal of Chemical Education 2014 91 (1), 107-111 DOI: 10.1021/ed300261a

### Forensic Chemistry in the Undergraduate Curriculum

- A Multi-Technique Forensic Experiment for a Nonscience-Major Chemistry Course, Paul S. Szalay, Lois Anne Zook-Gerdau, and Eric J. Schurter, Journal of Chemical Education 2011 88 (10), 1419-1421 DOI: 10.1021/ed101087b
- An Interdisciplinary Guided Inquiry Laboratory for First Year Undergraduate Forensic Science Students, Sarah L. Cresswell and Wendy A. Loughlin, Journal of Chemical Education 2015 92 (10), 1730-1735 DOI: 10.1021/acs.jchemed.5b00183
- Exploring Perspectives and Identifying Potential Challenges Encountered with Crime Scene Investigations when Developing Chemistry Curricula, A Bakarr Kanu, Megan Pajski, Machelle Hartman, Irene Kimaru, Susan Marine, and Lawrence J. Kaplan, Journal of Chemical Education 2015 92 (8), 1353-1358 DOI: 10.1021/ed500671x
- Forensics as a Gateway: Promoting Undergraduate Interest in Science, and Graduate Student Professional Development through a First-Year Seminar Course, Louise K. Charkoudian, Jared J. Heymann, Marc J. Adler, Kathryn L. Haas, Kassy A. Mies, and James F. Bonk, Journal of Chemical Education 2008 85 (6), 807 DOI: 10.1021/ed085p807

### Analysis of Evidence: Fingerprints, Arson, Poison, and Illicit Drugs

- Forensic Chemistry: The Revelation of Latent Fingerprints, J. Brent Friesen, Journal of Chemical Education 2015 92 (3), 497-504 DOI: 10.1021/ed400597u
- Activities Designed for Fingerprint Dusting and the Chemical Revelation of Latent Fingerprints, J. Brent Friesen, Journal of Chemical Education 2015 92 (3), 505-508 DOI: 10.1021/ed500406v
- Inquiry-Based Arson Investigation for General Chemistry Using GC-MS, Maurer, M.; Bukowski, M.; Menachery, M.; Zatorsky, A., Journal of Chemical Education 2010, 87, 311– 313 DOI:

10.1021/ed800083b
- Using The Poisoner's Handbook in Conjunction with Teaching a First-Term General/Organic/Biochemistry Course, Daniel R. Zuidema and Lindsey B. Herndon, Journal of Chemical Education 2016 93 (1), 98-102 DOI: 10.1021/acs.jchemed.5b00205
- Using Laboratory Chemicals To Imitate Illicit Drugs in a Forensic Chemistry Activity, Shawn Hasan, Deborah Bromfield-Lee, Maria T. Oliver-Hoyo, and Jose A. Cintron-Maldonado, Journal of Chemical Education 2008 85 (6), 813 DOI: 10.1021/ed085p813

## Articles de Chemistry Education Research and Practice

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) |
| 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)<br>Juntunen and Aksela (2014) |
| Quantum chemistry | Greca and Freire (2014) |
| Graphical representations of orbitals | Barradas-Solas and Sánchez Gómez (2014)<br>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
- Chemistry and Environmental Education, 2004
- 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

- …

## 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

## 2021

- 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)
    - Student-generated PowerPoint animations: a study of student teachers' conceptions of

molecular motions through their expressed models - Chemistry Education Research and Practice (RSC Publishing)
    - Development of pre-service teachers' pedagogical content knowledge through a PCK-based school experience course - Chemistry Education Research and Practice (RSC Publishing)
    - South African physical sciences teachers' use of formulae and proportion when answering reaction-based stoichiometry calculation questions - Chemistry Education Research and Practice (RSC Publishing)
    - Examining the sources of high school chemistry teachers' practical knowledge of teaching with practical work: from the teachers' perspective - Chemistry Education Research and Practice (RSC Publishing)
    - Students' understanding of molar concentration - Chemistry Education Research and Practice (RSC Publishing)
- Volume 22, 01 January 2021, Issue 1, Page 1 to 225
    - Implementation of self-regulatory instruction to promote students' achievement and learning strategies in the high school chemistry classroom - Chemistry Education Research and Practice (RSC Publishing)
    - The role of motivation on secondary school students' causal attributions to choose or abandon chemistry - Chemistry Education Research and Practice (RSC Publishing)
    - Does the way charges and transferred electrons are depicted in an oxidation–reduction animation affect students' explanations? - Chemistry Education Research and Practice (RSC Publishing)
    - I realized what I was doing was not working: the influence of explicit teaching of metacognition on students' study strategies in a general chemistry I course - Chemistry Education Research and Practice (RSC Publishing)
    - The persistence of primary school students' initial ideas about acids and bases in the mental models of adults - Chemistry Education Research and Practice (RSC Publishing)
    - Improving students' summative knowledge of introductory chemistry through the forward testing effect: examining the role of retrieval practice quizzing - Chemistry Education Research and Practice (RSC Publishing)
    - Investigating first-year undergraduate chemistry students' reasoning with reaction coordinate diagrams when choosing among particulate-level reaction mechanisms Molly B. Atkinson, Michael Croisant and Stacey Lowery Bretz, Chem. Educ. Res. Pract., 2021
    - Investigating high school chemistry teachers' assessment item generation processes for a solubility lab - Chemistry Education Research and Practice (RSC Publishing)

## 2020

- Volume 21, 01 October 2020, Issue 4, Page 1015 to 1221
    - Pre-service chemistry teachers' pedagogical content knowledge for integrated STEM development with LESMeR model - Chemistry Education Research and Practice (RSC Publishing)
    - Linking the submicroscopic and symbolic level in physical chemistry: how voluntary simulation-based learning activities foster first-year university students' conceptual understanding - Chemistry Education Research and Practice (RSC Publishing)
    - Examining the effect of lab instructions on students' critical thinking during a chemical inquiry practical - Chemistry Education Research and Practice (RSC Publishing)
- Volume 21, 01 July 2020, Issue 3, Page 687 to 1013
    - Electrolysis: What textbooks don't tell us - Chemistry Education Research and Practice (RSC Publishing)

    - Pre-university students' perceptions about the life cycle of bioplastics and fossil-based plastics - Chemistry Education Research and Practice (RSC Publishing)
    - Capturing student conceptions of thermodynamics and kinetics using writing - Chemistry Education Research and Practice (RSC Publishing)
    - Video-based instruction on safety rules in the chemistry laboratory: its effect on student achievement - Chemistry Education Research and Practice (RSC Publishing)
    - The impact of coupling assessments on conceptual understanding and connection-making in chemical equilibrium and acid–base chemistry - Chemistry Education Research and Practice (RSC Publishing)
- Volume 21, 01 April 2020, Issue 2, Page 483 to 685
    - Student-generated video in chemistry education - Chemistry Education Research and Practice (RSC Publishing)
    - Increasing chemistry students' knowledge, confidence, and conceptual understanding of pH using a collaborative computer pH simulation - Chemistry Education Research and Practice (RSC Publishing)
    - Development of a measurement instrument to assess students' proficiency levels regarding galvanic cells - Chemistry Education Research and Practice (RSC Publishing)
- Volume 21, Issue 1 page 1 to 482
    - Revisiting the use of concept maps in a large enrollment general chemistry course: implementation and assessment
    - Impact of basic arithmetic skills on success in first-semester general chemistry
    - An examination of pre-service chemistry teachers' meaningful understanding and learning difficulties about aromatic compounds using a systemic assessment questions diagram
    - Developing a lesson plan on conventional and green pesticides in chemistry education – a project of participatory action research
    - Epistemological problems underlying pre-service chemistry teachers' aims to use practical work in school science
    - Secondary school students' chemistry self-concepts: gender and culture, and the impact of chemistry self-concept on learning behaviour
    - Secondary school students' acquisition of science capital in the field of chemistry
    - A teacher perspective on Scrum methodology in secondary chemistry education
    - How to promote chemical literacy? On-line question posing and communicating with scientists
    - Students' competence in translating between different types of chemical representations

## 2019

- Volume 20, Issue 4 page 651 to 936
    - Visualizations and representations in chemistry education - editorial - Resa Kelly and Sevil Akaygun, Chem. Educ. Res. Pract., 2019,20, 657-658 DOI: 10.1039/C9RP90009H
    - Attraction vs. repulsion – learning about forces and energy in chemical bonding with the ELI-Chem simulation Asnat R. Zohar and Sharona T. Levy, Chem. Educ. Res. Pract., 2019,20, 667-684 DOI: 10.1039/C9RP00007K
    - Supporting students' conceptual understanding of kinetics using screencasts and simulations outside of the classroom Ryan D. Sweeder, Deborah G. Herrington and Jessica R. VandenPlas, Chem. Educ. Res. Pract., 2019,20, 685-698 DOI: 10.1039/C9RP00008A
    - South African university students' attitudes towards chemistry learning in a virtually simulated learning environment Mafor Penn and Umesh Ramnarain, Chem. Educ. Res. Pract., 2019,20, 699-709 DOI: 10.1039/C9RP00014C

    - Representational challenges in animated chemistry: self-generated animations as a means to encourage students' reflections on sub-micro processes in laboratory exercises Astrid Berg, Daniel Orraryd, Alma Jahic Pettersson and Magnus Hultén, Chem. Educ. Res. Pract., 2019,20, 710-737 DOI: 10.1039/C8RP00288F (open access)
    - Two studies comparing students' explanations of an oxidation–reduction reaction after viewing a single computer animation: the effect of varying the complexity of visual images and depicting water molecules Martin H. Cole, Deborah P. Rosenthal and Michael J. Sanger, Chem. Educ. Res. Pract., 2019,20, 738-759 DOI: 10.1039/C9RP00065H
    - Multiple representations in the development of students' cognitive structures about the saponification reaction Mónica Baptista, Iva Martins, Teresa Conceição and Pedro Reis, Chem. Educ. Res. Pract., 2019,20, 760-771 DOI: 10.1039/C9RP00018F
    - What you see is what you learn? The role of visual model comprehension for academic success in chemistry Thomas Dickmann, Maria Opfermann, Elmar Dammann, Martin Lang and Stefan Rumann, Chem. Educ. Res. Pract., 2019,20, 804-820 DOI: 10.1039/C9RP00016J
    - Exploring prospective chemistry teachers' perceptions of precipitation, conception of precipitation reactions and visualization of the sub-microscopic level of precipitation reactions Canan Nakiboğlu and Nuri Nakiboğlu, Chem. Educ. Res. Pract., 2019,20, 873-889 DOI: 10.1039/C9RP00109C
- Volume 20, Issue 3 page 443 to 649
    - Application and testing of a framework for characterizing the quality of scientific reasoning in chemistry students' writing on ocean acidification Alena Moon, Robert Moeller, Anne Ruggles Gere and Ginger V. Shultz, Chem. Educ. Res. Pract., 2019,20, 484-494 DOI: 10.1039/C9RP00005D
    - Evaluating the effectiveness of Integrated STEM-lab activities in improving secondary school students' understanding of electrolysis Noor Haslina Daman Huri and Mageswary Karpudewan, Chem. Educ. Res. Pract., 2019,20, 495-508 DOI: 10.1039/C9RP00021F
    - Effect of practicum courses on pre-service teachers' beliefs towards chemistry teaching: a year-long case study Yezdan Boz, Betul Ekiz-Kiran and Elif Selcan Kutucu, Chem. Educ. Res. Pract., 2019,20, 509-521 DOI: 10.1039/C9RP00022D
    - Designing play-based learning chemistry activities in the preschool environment Karina Adbo and Clara Vidal Carulla, Chem. Educ. Res. Pract., 2019, 20, 542-553 DOI: 10.1039/C8RP00306H
    - The impact of students' educational background, interest in learning, formal reasoning and visualisation abilities on gas context-based exercises achievements with submicro-animations Jerneja Pavlin, Saša A. Glažar, Miha Slapničar and Iztok Devetak, Chem. Educ. Res. Pract., 2019,20, 633-649 DOI: 10.1039/C8RP00189H
- Volume 20, Issue 2 page 331 to 442
    - University chemistry students' interpretations of multiple representations of the helium atom Zahilyn D. Roche Allreda and Stacey Lowery Bretz, Chem. Educ. Res. Pract., 2019,20, 358-368 DOI: 10.1039/C8RP00296G
    - Development and use of a multiple-choice item writing flaws evaluation instrument in the context of general chemistry Jared Breakall, Christopher Randles and Roy Tasker, Chem. Educ. Res. Pract., 2019,20, 369-382 DOI: 10.1039/C8RP00262B
    - Analysis of the role of a writing-to-learn assignment in student understanding of organic acid–base concepts Jennifer A. Schmidt-McCormack, Jessyca A. Judge, Kellie Spahr, Ellen Yang, Raymond Pugh, Ashley Karlin, Atia Sattar, Barry C. Thompson, Anne Ruggles Gere and Ginger V. Shultz, Chem. Educ. Res. Pract., 2019,20, 383-398 DOI: 10.1039/C8RP00260F
    - A web-based ionisation energy diagnostic instrument: exploiting the affordances of technology Kim Chwee Daniel Tan, Keith S. Taber, Yong Qiang Liew and Kay Liang Alan

Teo, Chem. Educ. Res. Pract., 2019,20, 412-427 DOI: 10.1039/C8RP00215K

- Volume 20, Issue 1, page 1 to 329
  - The influence of the explicit nature of science instruction embedded in the Argument-Driven Inquiry method in chemistry laboratories on high school students' conceptions about the nature of science Guluzar Eymura, Chem. Educ. Res. Pract., 2019,20, 17-29 DOI: 10.1039/C8RP00135A
  - Analysis of text difficulty in lower-secondary chemistry textbooks Martin Rusek and Karel Vojíř, Chem. Educ. Res. Pract., 2019,20, 85-94 DOI: 10.1039/C8RP00141C
  - A novel practical pedagogy for terminal assessment Naomi Hennah, Chem. Educ. Res. Pract., 2019,20, 95-106 DOI: 10.1039/C8RP00186C
  - Representations of chemical phenomena in secondary school chemistry textbooks Johnson Enero Upahi and Umesh Ramnarain, Chem. Educ. Res. Pract., 2019,20, 146-159 DOI: 10.1039/C8RP00191J
  - A phenomenographic study of 10th grade students' understanding of electrolytes Shanshan Lu, Hualin Bi and Xiufeng Liu, Chem. Educ. Res. Pract., 2019,20, 204-212 DOI: 10.1039/C8RP00125A
  - The effects of microcomputer-based laboratories on students macro, micro, and symbolic representations when learning about net ionic reactions Jianqiang Ye, Shanshan Lu and Hualin Bi, Chem. Educ. Res. Pract., 2019,20, 288-301 DOI: 10.1039/C8RP00165K
  - Profiling the combinations of multiple representations used in large-class teaching: pathways to inclusive practices João Elias Vidueira Ferreira and Gwendolyn Angela Lawrie, Chem. Educ. Res. Pract., 2019,20, 902-923 DOI: 10.1039/C9RP00001A

## 2018

- Volume 19, Issue 4, page 983 to 1318
  - Learning progressions and teaching sequences – old wine in new skins? Sascha Bernholt and Hannah Sevian, Chem. Educ. Res. Pract., 2018,19, 989-997 DOI: 10.1039/C8RP90009D
  - Student progression on chemical symbol representation abilities at different grade levels (Grades 10–12) across gender Shaohui Chi, Zuhao Wang, Ma Luo, Yuqin Yang and Min Huang, Chem. Educ. Res. Pract., 2018,19, 1055-1064 DOI: 10.1039/C8RP00010G
  - Using student-generated animations: the challenge of dynamic chemical models in states of matter and the invisibility of the particles Zeynep Yaseen, Chem. Educ. Res. Pract., 2018,19, 1166-1185 DOI: 10.1039/C8RP00136G
  - Teaching and learning chemical bonding: research-based evidence for misconceptions and conceptual difficulties experienced by students in upper secondary schools and the effect of an enriched text Georgios Tsaparlis, Eleni T. Pappa and Bill Byers, Chem. Educ. Res. Pract., 2018,19, 1253-1269 DOI: 10.1039/C8RP00035B
- Volume 19, Issue 3, page 639 to 982
  - The challenges of learning and teaching chemical bonding at different school levels using electrostatic interactions instead of the octet rule as a teaching model Jarkko Joki and Maija Aksela, Chem. Educ. Res. Pract., 2018,19, 834-845 DOI: 10.1039/C8RP00045J
    - *cf.* Avoiding bonding misconceptions - Students' understanding regresses after teachers introduce the octet rule, Education in Chemistry (RSC), sept. 2018, David Read.
  - Undergraduate chemistry students' misconceptions about reaction coordinate diagrams Roshan Lamichhane, Cathrine Reck and Adam V. Maltese, Chem. Educ. Res. Pract., 2018,19, 834-845 DOI: 10.1039/C8RP00045J
- Volume 19, Issue 2, page 399 to 637

    - Low-achieving students' attitudes towards learning chemistry and chemistry teaching methods P. Kousa, R. Kavonius and M. Aksela, Chem. Educ. Res. Pract., 2018,19, 431-441 DOI: 10.1039/C7RP00226B
    - Improving the interest of high-school students toward chemistry by crime scene investigation A. Basso, C. Chiorri, F. Bracco, M. M. Carnasciali, M. Alloisio and M. Grotti, Chem. Educ. Res. Pract., 2018,19, 558-566 DOI: 10.1039/C7RP00232G
- Volume 19, Issue 1, page 1 to 397
    - Interactions of chemistry teachers with gifted students in a regular high-school chemistry classroom, Naama Bennya and Ron Blonder, Chem. Educ. Res. Pract., 2018,19, 122-134 DOI: 10.1039/C7RP00127D
    - Secondary school chemistry teacher's current use of laboratory activities and the impact of expense on their laboratory choices, Sarah B. Boesdorfer and Robin A. Livermore, Chem. Educ. Res. Pract., 2018,19, 135-148 Chem. Educ. Res. Pract., 2018,19, 135-148
    - Development of pre-service chemistry teachers' technological pedagogical content knowledge Ayla Cetin-Dindar, Yezdan Boz, Demet Yildiran Sonmez and Nilgun Demirci Cele, Chem. Educ. Res. Pract., 2018,19, 167-183 DOI: 10.1039/C7RP00175D
    - Using a multi-tier diagnostic test to explore the nature of students' alternative conceptions on reaction kinetics, Yaw Kai Yan and R. Subramaniam, Chem. Educ. Res. Pract., 2018,19, 213-226 DOI: 10.1039/C7RP00143F
    - Students' visualisation of chemical reactions – insights into the particle model and the atomic model, Maurice M. W. Cheng, Chem. Educ. Res. Pract., 2018,19, 227-239 DOI: 10.1039/C6RP00235H
    - The role of teacher questions in the chemistry classroom, Sofie Weiss Dohrn and Niels Bonderup Dohn, Chem. Educ. Res. Pract., 2018,19, 352-363 DOI: 10.1039/C7RP00196G

## 2017

- Studying the consistency between and within the student mental models for atomic structure Nikolaos Zarkadis, George Papageorgiou and Dimitrios Stamovlasis, Chem. Educ. Res. Pract., 2017, 18, 893-902, DOI: 10.1039/C7RP00135E
- Engaging students in analyzing and interpreting data to construct mathematical models: an analysis of students' reasoning in a method of initial rates task Nicole M. Becker, Charlie A. Rupp and Alexandra Brandriet, Chem. Educ. Res. Pract., 2017,18, 798-810, DOI: 10.1039/C6RP00205F
- 'Triangulation:' an expression for stimulating metacognitive reflection regarding the use of 'triplet' representations for chemistry learning Gregory P. Thomas, Chem.Educ.Res.Pract, 2017. DOI: 10.1039/c6rp00227g
    - discuté ici : Triangulation to tame the Triplet Getting your students to think about how they learn
- Scaffolding the development of problem-solving skills in chemistry: guiding novice students out of dead ends and false starts Elizabeth Yuriev, Som Naidu, Luke S. Schembri and Jennifer L. Short, Chem. Educ. Res. Pract., 2017, 18, 486-504 DOI: 10.1039/C7RP00009J
- Argumentation to foster pre-service science teachers' knowledge, competency, and attitude on the domains of chemical literacy of acids and bases C. Cigdemoglu, H. O. Arslan and A. Cam, Chem. Educ. Res. Pract., 2017, 18, 288 DOI: 10.1039/C6RP00167J

## 2016

- An inquiry-based approach of traditional 'step-by-step' experiments, L. Szalay and Z. Tóthb,

Chem. Educ. Res. Pract., 2016,17, 923-961 DOI: 10.1039/C6RP00044D
- Exploring the impact of argumentation on pre-service science teachers' conceptual understanding of chemical equilibrium, Mehmet Aydeniz and Alev Dogan, Chem. Educ. Res. Pract., 2016, DOI: 10.1039/C5RP00170F (cf. ici)
- Is the oxygen atom static or dynamic? The effect of generating animations on students' mental models of atomic structure, Sevil Akayguna Chem. Educ. Res. Pract., 2016, 17, 788-807 DOI: 10.1039/C6RP00067C
- A review of research on the teaching and learning of chemical kinetics Kinsey Bain and Marcy H. Towns, Chem. Educ. Res. Pract., 2016,17, 246-262 DOI: 10.1039/C5RP00176E

## 2015

- Doing it for themselves: students creating a high quality peer-learning environment, Kyle W. Galloway and Simon Burns, Chem. Educ. Res. Pract., 2015, DOI: 10.1039/C4RP00209A (cf. eic)
- Diagnostic assessment of student misconceptions about the particulate nature of matter from ontological perspective Dilek Özalp and Ajda Kahveci, Chem. Educ. Res. Pract., 2015, 16, 619-639, DOI: 10.1039/C5RP00096C
- …

## 2014

- Prospective pedagogy for teaching chemical bonding for smart and sustainable learning, Harkirat S. Dhindsa and David F. Treagust, Chem. Educ. Res. Pract., 2014,15, 435-446 DOI: 10.1039/C4RP00059E (cf. eic)
- Measuring meta-ignorance through the lens of confidence: examining students' redox misconceptions about oxidation numbers, charge, and electron transfer, Alexandra R. Brandriet and Stacey Lowery Bretz, Chem. Educ. Res. Pract., 2014,15, 729-746 DOI: 10.1039/C4RP00129J
- College chemistry students' use of memorized algorithms in chemical reactions, James M. Nyachwaya, Abdi-Rizak M. Warfa, Gillian H. Roehrig and Jamie L. Schneider. Chem. Educ. Res. Pract., 2014,15, 81-93 DOI: 10.1039/C3RP00114H

## 2013

- Representations of chemical bonding models in school textbooks – help or hindrance for understanding? , Anna Bergqvist, Michal Drechsler, Onno De Jong and Shu-Nu Chang Rundgren, Chem. Educ. Res. Pract., 2013, 14, 589-606. DOI: 10.1039/C3RP20159G
- Case study applications in chemistry lesson: gases, liquids, and solids Yıldızay Ayyıldız and Leman Tarhan, Chem. Educ. Res. Pract., 2013,14, 408-420 DOI: 10.1039/C3RP20152J
- Moving beyond definitions: what student-generated models reveal about their understanding of covalent bonding and ionic bonding Cynthia J. Luxford and Stacey Lowery Bretz, Chem. Educ. Res. Pract., 2013,14, 214-222. DOI: 10.1039/C3RP20154F
- Implementation and assessment of Cognitive Load Theory (CLT) based questions in an electronic homework and testing system Derek A. Behmke and Charles H. Atwood, Chem. Educ. Res. Pract., 2013, 14, 47-256 DOI: 10.1039/C3RP20153H
- Semantic mistakes and didactic difficulties in teaching the “amount of substance” concept: a useful model Bülent Pekdağ and Nursen Azizoğlu, Chem. Educ. Res. Pract., 2013, 14, 117-129 DOI: 10.1039/C2RP20132A

## 2010

- Can animations effectively substitute for traditional teaching methods? Part I: preparation and testing of materials Roberto Ma. Gregorius, Rhodora Santos, Judith B. Dano and Jose J. Gutierrez Chem. Educ. Res. Pract., 2010,11, 253-261 DOI: 10.1039/C0RP90006K
- Can animations effectively substitute for traditional teaching methods? Part II: Potential for differentiated learning Roberto Ma. Gregorius, Rhodora Santos, Judith B. Dano and Jose J. Gutierrez Chem. Educ. Res. Pract., 2010,11, 262-266 DOI: 10.1039/C0RP90007A

## 2009

- Different models used to interpret chemical changes: analysis of a curriculum and its impact on French students' reasoning Isabelle Kermen and Martine Méheut, Chem. Educ. Res. Pract., 2009,10, 24-34 DOI: 10.1039/B901457H
- Applying cognitive theory to chemistry instruction: the case for worked examples Kent J. Crippen and David W. Brooks, Chem. Educ. Res. Pract., 2009, 10, 35-41 DOI: 10.1039/B901458F

## 2008

- Reliable multi method assessment of metacognition use in chemistry problem solving Melanie M. Cooper, Santiago Sandi–Urena and Ron Stevens, Chem. Educ. Res. Pract., 2008, 9, 18-24 DOI: 10.1039/B801287N

## 2006

- Definition of ‘element’ Peter G. Nelson, Chem. Educ. Res. Pract., 2006, 7(4), 288-289 DOI: 10.1039/B6RP90015A

## 2005

- Conceptual change achieved through a new teaching program on acids and bases Gökhan Demircioglu, Alipasa Ayas and Hülya Demircioglu, Chem. Educ. Res. Pract., 2005,6, 36-51 DOI: 10.1039/B4RP90003K

## 2003

- Basic chemical concepts Peter G. NELSON, Chem. Educ. Res. Pract., Vol 4(1), pp 19-24, 2003 DOI: 10.1039/B2RP90033E
- Chemical phenomena versus chemical reactions: do students make the connection? Georgios TSAPARLIS, Chem. Educ. Res. Pract., Vol 4(1), pp 31-43, 2003 DOI: 10.1039/B2RP90035A

## 2002

- Teaching chemistry progressively: from substances, to atoms and molecules, to electrons and nuclei Peter G. NELSON, Chem. Educ. Res. Pract., Vol 3 n°2, pp 215-228, 2002 DOI:

10.1039/B2RP90017C
- The learning and teaching of the concepts « amount of substance » and « mole » : a review of the literature, Carlos FURIÓ, Rafael AZCONA and Jenaro GUISASOLA Chem. Educ. Res. Pract., vol.3, n°3, pg 277-292, 2002 DOI: 10.1039/B2RP90023H

### 2001

- Building the structural concepts of chemistry : some considerations from educational research Keith S. TABER, Chem. Educ. Res. Pract., vol.2 123-158, 2001 DOI: 10.1039/B1RP90014E

### 2000

- Travaux pratiques en chimie et représentation de la réaction chimique par l'équation-bilan dans les registres macroscopique et microscopique: une étude en classe de seconde (15 - 16 ans) André LAUGIER and Alain DUMON, Chem. Educ. Res. Pract., 2000, vol.1, n°1, 61-75 DOI: 10.1039/A9RP90007A

## International Journal of Science Education

- The qualitatively different conceptions of 1 mol Helge Strömdahl , Aina Tullberg & Leif Lybeck, International Journal of Science Education: Vol 16, No 1, Pages 17-26, 1994 DOI: 10.1080/0950069940160102
- Students' conceptions of 1 mol and educators' conceptions of how they teach 'the mole' Aina Tullberg , Helge Strömdahl & Leif Lybeck, International Journal of Science Education: Vol 16, No 2, Pages 145-156, 1994 DOI: 10.1080/0950069940160204
- The 'Mole Environment' studyware: applying multidimensional analysis to quantitative chemistry problems Yehudit J. Dori & Mira Hameiri, International Journal of Science Education, 1998, 20:3, 317-333, DOI: 10.1080/0950069980200305
- Difficulties in teaching the concepts of 'amount of substance' and 'mole' CarloS. Furió, RafaeL. Azcona, Jenaro Guisasola & Mary Ratcliffe, International Journal of Science Education, 2000, 22:12, 1285-1304, DOI: 10.1080/095006900750036262
    - An investigation into chemical engineering students' understanding of the mole and the use of concrete activities to promote conceptual change Jennifer M. Case & Duncan M. Fraser, International Journal of Science Education, 1999, 21:12, 1237-1249, DOI: 10.1080/095006999290048
- International Journal of Science Education: Vol 40, No 10 **Context-based Learning and Teaching in STEM**
    - Designing context-based teaching materials by transforming authentic scientific modelling practices in chemistry Gjalt T. Prins, Astrid M.W. Bulte & Albert Pilot International Journal of Science Education Volume 40, 2018 - Issue 10 Pages 1108-1135 DOI: 10.1080/09500693.2018.1470347
    - Context characteristics and their effects on students' situational interest in chemistry Sebastian Habig, Janet Blankenburg, Helena van Vorst, Sabine Fechner, Ilka Parchmann & Elke Sumfleth International Journal of Science Education Volume 40, 2018 - Issue 10 Pages 1154-1175 DOI: 10.1080/09500693.2018.1470349
    - Using model-based scaffolds to support students solving context-based chemistry problems Karolina Broman, Sascha Bernholt & Ilka Parchmann, International Journal of Science Education - Volume 40, 2018 - Issue 10 Pages 1176-1197 DOI:

10.1080/09500693.2018.1470350
    - Comparison of learning in two context-based university chemistry classes Hannah Sevian, Deirdre Hugi-Cleary, Courtney Ngai, Florence Wanjiku & Jesse Mhel Baldoria International Journal of Science Education - Volume 40, 2018 - Issue 10 Pages 1239-1262 DOI: 10.1080/09500693.2018.1470353

## Articles parus dans d'autres revues

- Teaching the Mole Werner Dierks, European Journal of Science Education, 1981, 3:2, 145-158, DOI: 10.1080/0140528810030205
- Analyzing difficulties with mole-concept tasks by using familiar analog tasks Dorothy Gabel, Robert D. Sherwood, Journal of Research in Science Teaching, Volume 21, Issue 8, November 1984, pages 843-851 DOI: 10.1002/tea.3660210808
- A content analysis of the presentation of the mole concept in chemistry textbooks John R. Staver, Andrew T. Lumpe, Journal of Research in Science Teaching Volume 30, Issue 4, April 1993, Pages 321-337 DOI: 10.1002/tea.3660300402
- Two investigations of students' understanding of the mole concept and its use in problem solving John R. Staver, Andrew T. Lumpe, Journal of Research in Science Teaching Volume 32, Issue 2, February 1995, Pages 177-193 DOI: 10.1002/tea.3660320207
- The Importance of History and Philosophy of Science in Correcting Distorted Views of 'Amount of Substance' and 'Mole' Concepts in Chemistry Teaching Kira Padilla, Carles Furio-Mas, Sci & Educ (2008) 17: 403. DOI: 10.1007/s11191-007-9098-2
- Learning chemistry in a metacognitive environment. 2008, Richard Pulmones Asia-Pacific Education Researcher, 16(2), 165–183. DOI: 10.3860/taper.v16i2.258 lien RG, lien 2
- Teaching-Learning of Chemistry: Analysis of Representations of Learners on the Modeling of Chemical Transformation El Hassane Touli, Mohammed Talbi, Mohamed, Radid, Procedia - Social and Behavioral Sciences Volume 46, 2012, Pages 47-52 DOI: 10.1016/j.sbspro.2012.05.065
- Transfer in chemistry: a study of students' abilities in transferring mathematical knowledge to chemistry Richard A. Hoban , Odilla E. Finlayson & Brien C. Nolan International Journal of Mathematical Education in Science and Technology Volume 44, 2013 - Issue 1 Pages 14-35 DOI: 10.1080/0020739X.2012.690895
- The efficiency of worked examples compared to erroneous examples, tutored problem solving, and problem solving in computer-based learning environments Computers in Human Behavior Volume 55, Part A, February 2016, Pages 87-99 DOI: 10.1016/j.chb.2015.08.038
- Interleaved presentation benefits science category learning Eglington, L. G., & Kang, S. H. K. (2017) Journal of Applied Research in Memory and Cognition, 6(4), 475-485. DOI: 10.1016/j.jarmac.2017.07.005 → students chemical categories (comparison of interleaved and blocked practice)
- Chemistry Education Research—From Personal Empiricism to Evidence, Theory, and Informed Practice Melanie M. Cooper and Ryan L. Stowe, Chem. Rev., 2018, 118(12), 6053-6087 DOI: 10.1021/acs.chemrev.8b00020 **Open Access & Review of Chemistry Education Research**
- Quand l'élève devient auteur : analyse didactique d'un atelier BD-chimie Isabelle Kermen, Cécile De Hosson, Laurence Bordenave - Telling Science, drawing Science - Science en récit, Science en images https://tsds2019.sciencesconf.org/230855, Angoulème 2019
- Technology Integration in Chemistry Education and Research (TICER) Editor(s): Tanya Gupta, Robert E. Belford, ACS 2019 Volume 1318 ISBN: 9780841234390 DOI: DOI: 10.1021/bk-2019-1318 → nombreux articles
- Improving First-Semester General Chemistry Student Success Through Retrieval Practice Saul R. Trevino, Elizabeth Trevino, and Mary Osterloh - Enhancing Retention in Introductory Chemistry Courses: Teaching Practices and Assessments, Chapter 4, pp 69-75 ACS Symposium Series Vol.

1330 (ACS Publications) DOI: 10.1021/bk-2019-1330.ch004
- Constructing a Periodic Table: A Proposed Practice Activity for High School Chemistry Classes Guerra, G. , Felicio, C. , Ferreira, J. and Noll, M. (2019) Creative Education, 10, 677-689. DOI: 10.4236/ce.2019.104050

- **Stacey Lowery Bretz**
  - A Chronology of Assessment in Chemistry Education Stacey Lowery Bretz, in "Trajectories of Chemistry Education Innovation and Reform", Chapter 10, 2013, 145-153 ACS Symposium Series, Volume 1145 DOI: 10.1021/bk-2013-1145.ch010
  - Qualitative Research Designs in Chemistry Education Research Stacey Lowery Bretz, in "Nuts and Bolts of Chemical Education Research", Chapter 7, 2008, 79-99 ACS Symposium Series, Volume 976 DOI: 10.1021/bk-2008-0976.ch007
  - Designing Assessment Tools To Measure Students' Conceptual Knowledge of Chemistry Stacey Lowery Bretz, in "Tools of Chemistry Education Research", Chapter 9, 2014, 155-168 ACS Symposium Series, Volume 1166 DOI: 10.1021/bk-2014-1166.ch009
  - Faculty Goals, Inquiry, and Meaningful Learning in the Undergraduate Chemistry Laboratory Stacey Lowery Bretz, Kelli Rush Galloway, Joanna OrzelElizabeth Gross, in "Technology and Assessment Strategies for Improving Student Learning in Chemistry", Chapter 6, 2016, 101-115 ACS Symposium Series, Volume 1235 DOI: 10.1021/bk-2016-1235.ch006

## Thèses de doctorat, PhD Thesis

- Histoire du concept de Mole (1869-1969) : à la croisée des disciplines physique et chimie par Christiane Chabas-Bues, Thèse de doctorat en Philosophie sous la direction de Bernadette Bensaude-Vincent, Paris 10, 1999 → article Histoire du concept de mole (1869-1969) à la croisée des disciplines physique et chimie, L'actualité chimique, N° 239 octobre 2000, pp39-42
- theses.fr – David Cross , Les connaissances professionnelles de l'enseignant : reconstruction a partir d'un corpus vidéo de situations de classe de chimie (2009)
- theses.fr – David Lafarge , Analyse didactique de l'enseignement-apprentissage de la chimie organique jusqu'à bac+2 pour envisager sa restructuration (2010)
- Investigating Students' Understandings of the Symbolic, Macroscopic, and Particulate Domains of Oxidation-Reduction and the Development of the Redox Concept Inventory Brandriet, Alexandra R, 2014, Miami University
- theses.fr – Ali Nouiri, Analyse de l'action didactique, de sa continuité et de ses déterminants : cas de l'enseignement de titrage acide-base en classes terminales tunisiennes (2016)
- theses.fr – Sophie Canac , Le langage symbolique de la chimie en tant que méta-niveau entre registre empirique et registre des modèles : une problématique de l'enseignement-apprentissage de chimie (2017)
- Construction d'outils didactiques pour remédier aux difficultés d'apprentissage du concept de concentration en chimie dans le secondaire supérieur - Appui sur les neurosciences cognitives Bénédicte Willame, Institut de Recherches en Didactiques et Education de l'UNamur, thèse 2017
  - Les difficultés rencontrées dans l'apprentissage du concept de concentration en chimie Willame, B. et Snauwaert, P. (2015) Spiral-E Revue de recherches en éducation, 55(1), 177-205. DOI: 10.3406/spira.2015.1743
  - ENTRAINEMENT AU CONTRÔLE INHIBITEUR ET APPRENTISSAGE EN CHIMIE DANS LE SECONDAIRE SUPÉRIEUR : FAVORISER UN CHANGEMENT DE PRÉVALENCE CONCEPTUELLE Bénédicte WILLAME et Philippe SNAUWAERT 2018 5(2) 73-92 — Neuroeducation DOI: 10.24046/neuroed.20180502.73 - 005-002-003_Willame+&+Snauwaert_final.pdf
- L'équation chimique, un sujet d'étude pour diagnostiquer les difficultés d'apprentissage de la

langue symbolique des chimistes dans l'enseignement secondaire belge : Développement d'une séquence de leçons en s'appuyant sur un modèle des niveaux de signification Jérémy Dehon, Département de Chimie, Institut de Recherches en Didactiques et Education de l'UNamur, thèse 2018

- Thèse Laureline Van Overmeir, ULB, 2019 "L'enseignement de la chimie organique dans le secondaire belge francophone : des conceptions alternatives à de nouvelles approches pédagogiques". Promoteur : Prof. Cécile Moucheron. La thèse propose deux séquences d'apprentissage :
- Analyse de l'activité étudiante lors de séances de laboratoire de chimie: vers une compréhension des raisonnements adoptés lors de l'écriture de résultats expérimentaux et de l'acquisition des techniques de dilution et de titrage colorimétrique. Thèse de Céline Picron, UNamur, 10 sept. 2020. Promoteur : Ph. SNAUWAERT lien direct
- Analyse et développement des méthodes et pratiques d'enseignement liées à l'éducation à l'environnement et à la gestion des déchets pour les enseignants des lycées et collèges dans le domaine de la chimie au Burkina Faso. Thèse présentée par Issa ZONGO en vue de l'obtention du grade académique de docteur en sciences (ULB) et en sciences/Didactique des sciences (Université Norbert ZONGO UNZ - Burkina Faso) - Année académique 2021-2022 (défense publique le 10 octobre 2022, promoteurs : Prof. Cécile Moucheron, ULB, et Dr Moussa BOUGOUMA, UNZ)
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