

Sélection d'articles en didactique de la chimie

Liens rapides :

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

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

Articles de Journal of Chemical Education

ASAP and/or ACS Editors Choice articles

- [Johnstone's Triangle as a Pedagogical Framework for Flipped-Class Instructional Videos in Introductory Chemistry](#)
- ...

Virtual Issue

- [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](#)

2020

- mai
 - Design of Culinary Transformations: A Chemistry Course for Nonscience Majors | Journal of Chemical Education
 - Introducing Nonscience Majors to Science Literacy via a Laboratory and Lecture Beer Brewing Course
 - Property Information in Substance Records in Major Web-Based Chemical Information and Data Retrieval Tools: Understanding Content, Search Opportunities, and Application to Teaching
 - Using Augmented Reality to Stimulate Students and Diffuse Escape Game Activities to Larger Audiences
 - Playing a Board Game to Learn Bioenergy and Biofuels Topics in an Interactive, Engaging Context
 - Relating ΔH_{vap} of Organic Liquids to Intermolecular Forces: Simple Modifications of a Classic General Chemistry Experiment
 - Visualizing 3D Molecular Structures Using an Augmented Reality App
 - Monte Carlo Uncertainty Propagation with the NIST Uncertainty Machine
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 - Exploring Students' Understanding of Resonance and Its Relationship to Instruction
 - Didaktik Models in Chemistry Education
 - Probing the Mechanism of Bubble Nucleation in and the Effect of Atmospheric Pressure on the Candy-Cola Soda Geyser
 - Designing and Using an Atomic Model Kit with H, C, N, and O Model Atoms Having a Mass Ratio of 1:12:14:16 to Teach the Concept of Mole and Associated Stoichiometric Relationships
 - Interactive 3D Visualization of Chemical Structure Diagrams Embedded in Text to Aid Spatial Learning Process of Students
 - Platonic Solids and Their Programming: A Geometrical Approach
 - Constructing, Troubleshooting, and Using Absorption Colorimeters to Integrate Chemistry and Engineering
 - Curve Fitting, Linear Algebra, and Solver in an Analytical Chemistry Course: A Facile and Safe Activity Suitable for the Classroom Setting
 - Elephant's Toothpaste Used as a Qualitative Demonstration of Rate versus Temperature
 - Phosphate in Soils: An Undergraduate Exploration of Soil Texture, Chemistry, and Amendment
 - Lab Cooked MOF for CO₂ Capture: A Sustainable Solution to Waste Management
 - Low-Cost 3D-Printed Polarimeter
 - Data Functionalization for Gas Chromatography in Python
 - Leavening Agents: The Chemistry of Baking Discovered with a Computer-Based Learning
 - Changes of CO₂ Concentration and Heat Illustrate Why the Flame Is Extinguished in the Candle-and-Cylinder Experiment
 - The Blue Bottle Experiment Revisited: How Much Oxygen?
 - Comment on "Should Organic Chemistry Be Taught as Science?"
- mars
 - The Emerging Role of Prepublication in Chemistry Education
 - Analysis of Two Definitions of the Mole That Are in Simultaneous Use, and Their Surprising Consequences
 - Impact of Representations in Assessments on Student Performance and Equity
 - Restructuring a General College Chemistry Sequence Using the ACS Anchoring Concepts Content Map
 - Innovative Food Laboratory for a Chemistry of Food and Cooking Course

- Team-Based Learning for Scientific Computing and Automated Experimentation: Visualization of Colored Reactions
- Using Image Recognition and Processing Technology to Measure the Gas Volume in a Miniature Water Electrolysis Device Constructed with Simple Materials
- Invisibility Cloaks and Hot Reactions: Applying Infrared Thermography in the Chemistry Education Laboratory
- That's Pretty Cool. Using Work to Freeze Water. The Vapor-Compression Refrigerator and How It Works
- That's So Cool. Using a Flame to Freeze Water. The Vapor-Absorption Refrigerator and How It Works
- Teaching Thermodynamics with the Quantum Volume
- Using Elementary Calculus and Dimensional Analysis to Prepare Students for Physical Chemistry
- Reactions: An Innovative and Fun Hybrid Game to Engage the Students Reviewing Organic Reactions in the Classroom
- Rolling the Dice: Modeling First- and Second-Order Reactions via Collision Theory Simulations in an Undergraduate Laboratory
- AIRduino: On-Demand Atmospheric Secondary Organic Aerosol Measurements with a Mobile Arduino Multisensor
- Simple Visual-Aided Automated Titration Using the Python Programming Language
- février
 - Green Chemistry Coverage in Organic Chemistry Textbooks | Journal of Chemical Education
 - Evaluating Feedstocks, Processes, and Products in the Teaching Laboratory: A Framework for Students To Use Metrics to Design Greener Chemistry Experiments | Journal of Chemical Education
 - Teaching Kinetics and Equilibrium Topics Using Interlocking Building Bricks in Hands-on Activities | Journal of Chemical Education
 - A Homemade Smart Phone Microscope for Single-Particle Fluorescence Microscopy | Journal of Chemical Education
 - 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
 - Exploring Chemical Equilibrium for Alcohol-Based Cobalt Complexation through Visualization of Color Change and UV-vis Spectroscopy | Journal of Chemical Education
 - Determination of Zinc Oxide in Pharmaceutical Preparations by EDTA Titration: A Practical Class for a Quantitative Analysis Course | Journal of Chemical Education
 - Time Bomb Game: Design, Implementation, and Evaluation of a Fun and Challenging Game Reviewing the Structural Theory of Organic Compounds | Journal of Chemical Education
 - 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

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- [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
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 - [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
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 - [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
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 - [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
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- [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
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 - [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
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 - [Rumford's Experimental Challenge to Caloric Theory: "Big Science" 18th-Century Style with Important Results for Chemistry and Physics](#) Frederic E. Schubert, J. Chem. Educ. 2019, 96(9), 1955-1960 DOI: 10.1021/acs.jchemed.9b00039
 - [Chemical Exploration with Virtual Reality in Organic Teaching Laboratories](#) Jonathon B. Ferrell, Joseph P. Campbell, Dillon R. McCarthy, Kyle T. McKay, Magenta Hensinger, Ramya Srinivasan, Xiaochuan Zhao, Alexander Wurthmann, Jianing Li, Severin T. Schneebeil, J. Chem. Educ. 2019, 96(9), 1961-1966 DOI: 10.1021/acs.jchemed.9b00036
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 - [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
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- [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
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 - [Simple and Economical Procedure To Assemble pH Glass Membrane Electrodes Used in Chemical Education](#) Fang Yong, Qihong Zhu, Guohao Zhang, Guohong Tao, Song Qin, J. Chem. Educ. 2019, 96(8), 1773-1777 DOI: 10.1021/acs.jchemed.9b00254
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 - [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
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 - [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
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 - [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
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 - [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
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- Editorials
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L'article [Influencing the practice of chemistry education](#) Chem. Educ. Res. Pract., 2019, DOI: 10.1039/C9RP90006C (Editorial) de Michael K. Seery propose de nombreux liens d'articles importants en CER (chemical education research) :

Sujet	Citation
Clickers in the classroom	MacArthur and Jones (2008)
Teaching chemical equilibrium	Raviolo and Garritz (2009)
Green chemistry	Andraos and Dicks (2012)
Use of dataloggers	Tortosa (2012)
Transfer of learning	Dori and Sasson (2013)
Chemical triplet (Johnstone's triangle)	Taber (2013)
Learning progressions	Sevian and Talanquer (2014)

Sujet	Citation
Teaching thermodynamics	Bain et al. (2014)
Solutions/electrolytes	de Berg (2014)
Hydrogen bonding	Weinhold and Klein (2014)
Education for sustainable development	Burmeister et al. (2012) Juntunen and Aksela (2014)
Quantum chemistry	Greca and Freire (2014)
Graphical representations of orbitals	Barradas-Solas and Sánchez Gómez (2014) Clauss et al. (2014)
Chemical bonding	Dhindsa and Treagust (2014)
Implicit knowledge	Taber (2014)
Distinguishing abstraction and complexity	Blackie (2014)
Organic chemistry	Graulich (2015)
Capturing student reasoning	Sevian et al. (2015)
Flipped learning	Seery (2015)
Chemical kinetics	Bain and Towns (2016)
Learning difficulties leading to misconceptions	Tümay (2016)
Symbolic expressions in chemistry	Liu and Taber (2016)
Pre-laboratory activities	Agustian and Seery (2017)
Reasoning about structure–property relationships	Talanquer (2018)

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- 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
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