

全国中文核心期刊  
美国化学文摘 (CA) 收录源期刊

ISSN 1003-3807



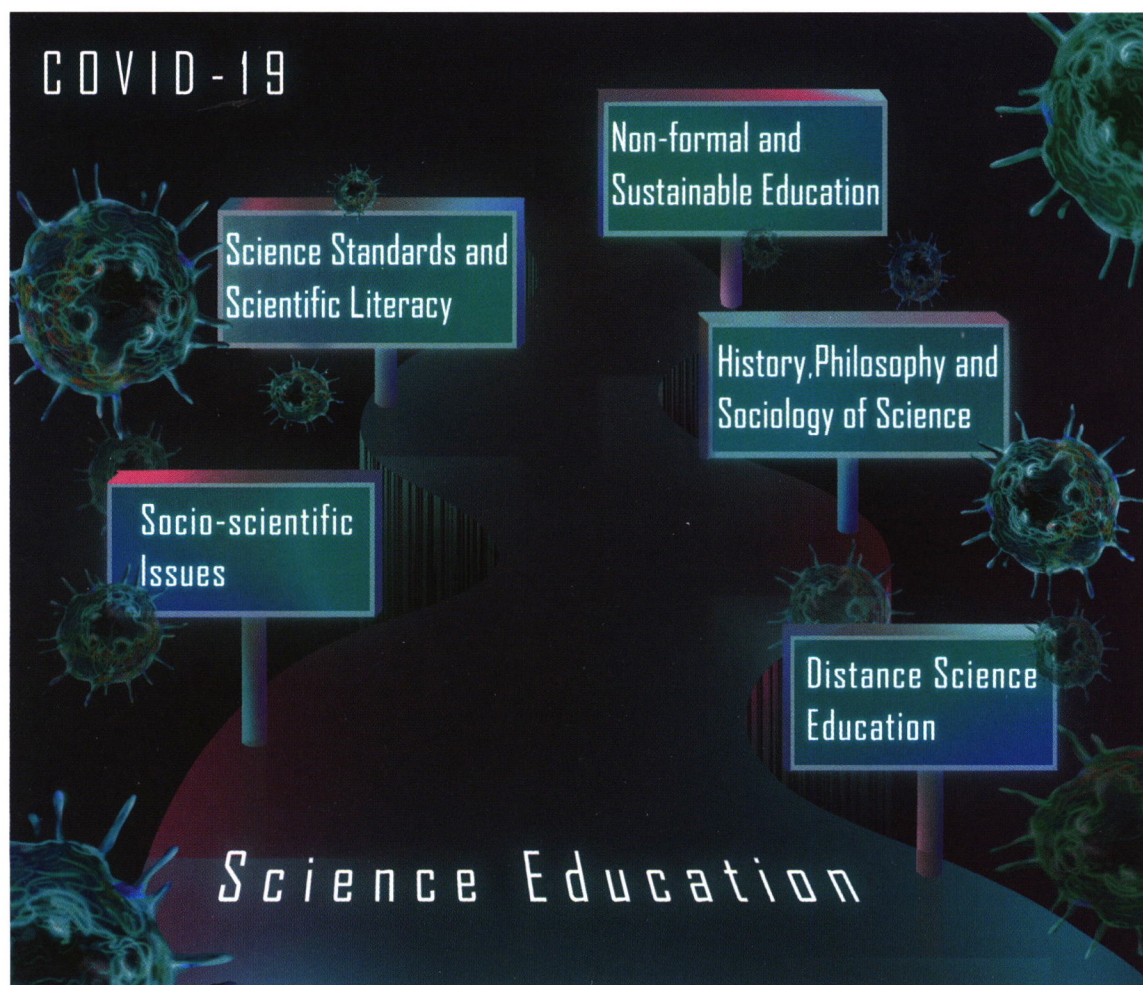
06

QK2214052

# 化学教育 (中英文)

Chinese Journal of Chemical Education

2022年 第43卷 第7期 Vol.43 No.7



邮发代号: 2-106

ISSN 1003-3807



07

9 771003 380222

HUAXUE JIAOYU

万方数据



CHINESE  
CHEMICAL  
SOCIETY



主管: 中国科学技术协会  
主办: 中国化学会  
北京师范大学

## 化学·生活·社会

走近千年文物——青铜器 ..... 罗思源 王 瑶 程福英 伍晓春 (1)

## 理论视点

化学概念教学中学生归纳与演绎思维的培养——基于对“电解质”概念教学的分析 ..... 周 竹 王世存 王后雄 (7)

## 优质课例

基于深度学习构建探究实验设计思路——以“探秘铜(II)离子配合物”为例 ... 张 帅 袁廷新 张建强 郭玉林 (11)

指向学习体验的物质及其转化复习的教学实践——以“钠及其化合物”为例 ..... 法 浩 刘 翠 (15)

基于思维模型建构的高三化学复习教学——以“平衡原理的应用”为例 ..... 袁君亚 (21)

基于深度学习的“实验方案设计”主题式复习教学——以“阿司匹林的制备和提纯”为例 ..... 隋 颖 (26)

基于社会性科学议题的化学微项目学习——以“物质的性质与转化”单元复习为例 ..... 黄 刚 许燕红 (31)

信息技术与“教-学-评”一体化深度融合的教学实践——以“有机合成”为例 ..... 伍芳丽 喻建军 娄珀瑜 (38)

发展“模型认知”素养的教学实践——以“化学方程式”为例 ..... 李春红 曹艳彤 张可欣 (47)

## 教学研究

从大概念“尺度与结构”角度构建深度思维课堂——以“晶体结构”为例 ..... 张道年 (52)

逆向设计在素养导向的单元教学设计中的应用——以“钠及其化合物”单元为例 ..... 赵博涵 李淑花 江媛媛 赵玉双 (57)

高中化学优质教学案例中教材分析的现状研究及分析模型建构 ..... 黄 远 (68)

## 调研报告

初中生化学学科能力性别差异研究 ..... 朱 君 周 礼 周 青 沙 涛 (77)

## 信息技术与化学

掌上分光光度计的开发及应用 ..... 李 嘉 (84)

## 问题讨论与思考

探究二氧化硫在盐酸中分别与铜单质、二价铜离子、氯化铁溶液的反应 ..... 李道兵 张仁波 方世翠 王 勉 彭志勇 (93)

深入理解化学平衡常数及其应用——对2019年全国理综(I卷)化学第28题的分析 ..... 孙 磊 孙国辉 郑长龙 (96)

## 国内外动态

新冠疫情与科学教育——国外与新冠疫情相关的科学教育研究述评 ..... 宋永娇 刘 瑞 彭林芸 (100)

国内外近30年“电化学”主题概念测查研究进展 ..... 林 颖 邓 峰 胡润泽 陈泳蓉 (109)

## 化学史与化学史教育

人物传记类化学科普图书的育人功能研究——基于《呦呦寻蒿记》的案例分析 ..... 李书惠 李 佳 (116)

## 化学奥林匹克

高中化学竞赛中电子效应和空间效应考点分析——以近年全国化学奥林匹克竞赛试题为例 ..... 林家辉 倪珏宸 (122)

## 论文简报

近20年《化学教育》“教学研究”栏目热点与前沿分析——基于CiteSpace的可视化分析 ..... 马红梅 刘敬华 (128)

## 书评

教育心理学视角下化学教学的优化——评《化学教育心理学》 ..... 石佳悦 (129)

2022年《化学教育》订阅通知 ..... (127)

封面图片 ..... (100)

本期责任编辑 陈会玲 张霄青

# CHINESE JOURNAL OF CHEMICAL EDUCATION

2022 Vol. 43 No. 7

Sponsored by Chinese Chemical Society and Beijing Normal University

## Chemistry-Life-Society

Thousand Years of Cultural Relics; Bronze Ware ..... LUO Si-Yuan WANG Yao CHENG Fu-Ying WU Xiao-Chun(1)

## Theoretical Perspective

Cultivation of Students' Inductive and Deductive Thinking in Teaching of "Electrolyte" Concept ..... ZHOU Zhu WANG Shi-Cun WANG Hou-Xiong(7)

## Excellent Lesson

Construction of Inquiry Experiment Design Based on Deep Learning ..... ZHANG Shuai YUAN Ting-Xin ZHANG Jian-Qiang GUO Yu-Lin(11)

Review Teaching Practice of "Sodium and Its Compounds" Based on Learning Experience ..... FA Hao LIU Cui(15)

Chemistry Review Teaching in Senior 3 Based on Thinking Model Construction; Application of Balance Principle ..... YUAN Jun-Ya(21)

Review Teaching of "Experimental Scheme Design" Based on Deep Learning; Preparation and Purification of Aspirin ..... SUI Ying(26)

Micro Project Chemistry Learning Based on Social Science Issues; Review of the Properties and Transformation of Substances ..... HUANG Gang XU Yan-Hong(31)

Deep Integration of Information Technology and "Teaching-Learning-Evaluation" Integration; Teaching of "Organic Synthesis" ..... WU Fang-Li YU Jian-Jun LOU Po-Yu(38)

Teaching Practice of "Chemical Equation" Based on "Model Cognition" Literacy Development ..... LI Chun-Hong CAO Yan-Tong ZHANG Ke-Xin(47)

## Teaching Research

Constructing Deep Thinking Classroom of Crystal Structure from the Perspective of "Scale and Structure" ..... ZHANG Dao-Nian(52)

Application of Backward Design in Literacy Oriented Large Unit Teaching Design of "Sodium and Its Compounds" ..... ZHAO Bo-Han LI Shu-Hua JIANG Yuan-Yuan ZHAO Yu-Shuang(57)

Status and Model Construction of Textbook Analysis About Senior High School Chemistry High-Quality Teaching Cases ..... HUANG Yuan(68)

## Investigation Report

Study on Gender Differences in Chemistry Discipline Ability of Junior High School Students ..... ZHU Jun ZHOU Li ZHOU Qing SHA Tao(77)

## Information Technology and Chemistry

Development and Application of Hand-Held Spectrophotometer ..... LI Jia(84)

## Discussion and Thinking of Questions

Exploring the Reaction of Sulfur Dioxide with Elemental Copper, Divalent Copper Ion and Ferric Chloride Solution in Hydrochloric Acid ..... LI Dao-Bing ZHANG Ren-Bo FANG Shi-Cui WANG Mian PENG Zhi-Yong(93)

Deep Understanding of Chemical Equilibrium Constants and Their Applications ..... SUN Lei SUN Guo-Hui ZHENG Chang-Long(96)

## Domestic and Overseas Trends

COVID-19 and Science Education: An International Review of Science Education Related to COVID-19 ..... SONG Yong-Jiao LIU Rui PENG Lin-Yun(100)

Research Progress in Test of Thematic Concept of "Electrochemistry" in the Past 30 Years at Home and Abroad ..... LIN Ying DENG Feng HU Run-Ze CHEN Yong-Rong(109)

## History of Chemistry and Chemical History Education

Educational Function of Biographical Popular Chemistry Books: Analysis of *Tu Youyou's Journey in the Search for Artemisinin* ..... LI Shu-Hui LI Jia(116)

## Chemistry Olympiad

Analysis of Test Sites for Electronic Effects and Steric Effects in Senior High School Chemistry Competitions; Test Questions of National Chemistry Olympiad in Recent Years ..... LIN Jia-Hui NI Jue-Chen(122)

## 化学教育(中英文)

(半月刊·1980年创中文刊·2017年变更为中英文刊)

2022年 第43卷 第7期 4月2日出版

主管单位 中国科学技术协会  
主办单位 中国化学会 北京师范大学  
编辑出版 《化学教育(中英文)》编辑部  
编辑部地址 北京师范大学化学楼217室  
邮政编码 100875  
电话(传真) 010-58807875  
咨询信箱 hxjy-jce@263.net  
投稿网址 http://www.hxjy.chemsoc.org.cn

顾问 刘知新  
主编 刘正平  
副主编 姜雪峰 施展 孙世刚 王磊  
王祖浩 杨屹 郑长龙 朱玉军(专职)  
刊名题字 戴安邦  
印刷装订 保定市海天印务有限公司  
总发行处 中国邮政集团公司北京市报刊发行局  
订 阅 全国各地邮局

刊号 ISSN 1003-3807  
CN 10-1515/O6

国内邮发代号 2-106

国外发行代号 M3070

定价 36.00元

万方数据

# CHINESE JOURNAL OF CHEMICAL EDUCATION

2022 Vol. 43 No. 7

Sponsored by Chinese Chemical Society and Beijing Normal University

## Chemistry-Life-Society

Thousand Years of Cultural Relics; Bronze Ware ..... LUO Si-Yuan WANG Yao CHENG Fu-Ying WU Xiao-Chun(1)

## Theoretical Perspective

Cultivation of Students' Inductive and Deductive Thinking in Teaching of "Electrolyte" Concept ..... ZHOU Zhu WANG Shi-Cun WANG Hou-Xiong(7)

## Excellent Lesson

Construction of Inquiry Experiment Design Based on Deep Learning ..... ZHANG Shuai YUAN Ting-Xin ZHANG Jian-Qiang GUO Yu-Lin(11)

Review Teaching Practice of "Sodium and Its Compounds" Based on Learning Experience ..... FA Hao LIU Cui(15)

Chemistry Review Teaching in Senior 3 Based on Thinking Model Construction; Application of Balance Principle ..... YUAN Jun-Ya(21)

Review Teaching of "Experimental Scheme Design" Based on Deep Learning; Preparation and Purification of Aspirin ..... SUI Ying(26)

Micro Project Chemistry Learning Based on Social Science Issues; Review of the Properties and Transformation of Substances ..... HUANG Gang XU Yan-Hong(31)

Deep Integration of Information Technology and "Teaching-Learning-Evaluation" Integration; Teaching of "Organic Synthesis" ..... WU Fang-Li YU Jian-Jun LOU Po-Yu(38)

Teaching Practice of "Chemical Equation" Based on "Model Cognition" Literacy Development ..... LI Chun-Hong CAO Yan-Tong ZHANG Ke-Xin(47)

## Teaching Research

Constructing Deep Thinking Classroom of Crystal Structure from the Perspective of "Scale and Structure" ..... ZHANG Dao-Nian(52)

Application of Backward Design in Literacy Oriented Large Unit Teaching Design of "Sodium and Its Compounds" ..... ZHAO Bo-Han LI Shu-Hua JIANG Yuan-Yuan ZHAO Yu-Shuang(57)

Status and Model Construction of Textbook Analysis About Senior High School Chemistry High-Quality Teaching Cases ..... HUANG Yuan(68)

## Investigation Report

Study on Gender Differences in Chemistry Discipline Ability of Junior High School Students ..... ZHU Jun ZHOU Li ZHOU Qing SHA Tao(77)

## Information Technology and Chemistry

Development and Application of Hand-Held Spectrophotometer ..... LI Jia(84)

## Discussion and Thinking of Questions

Exploring the Reaction of Sulfur Dioxide with Elemental Copper, Divalent Copper Ion and Ferric Chloride Solution in Hydrochloric Acid ..... LI Dao-Bing ZHANG Ren-Bo FANG Shi-Cui WANG Mian PENG Zhi-Yong(93)

Deep Understanding of Chemical Equilibrium Constants and Their Applications ..... SUN Lei SUN Guo-Hui ZHENG Chang-Long(96)

## Domestic and Overseas Trends

COVID-19 and Science Education: An International Review of Science Education Related to COVID-19 ..... SONG Yong-Jiao LIU Rui PENG Lin-Yun(100)

Research Progress in Test of Thematic Concept of "Electrochemistry" in the Past 30 Years at Home and Abroad ..... LIN Ying DENG Feng HU Run-Ze CHEN Yong-Rong(109)

## History of Chemistry and Chemical History Education

Educational Function of Biographical Popular Chemistry Books: Analysis of *Tu Youyou's Journey in the Search for Artemisinin* ..... LI Shu-Hui LI Jia(116)

## Chemistry Olympiad

Analysis of Test Sites for Electronic Effects and Steric Effects in Senior High School Chemistry Competitions; Test Questions of National Chemistry Olympiad in Recent Years ..... LIN Jia-Hui NI Jue-Chen(122)

## 化学教育(中英文)

(半月刊·1980年创中文刊·2017年变更为中英文刊)

2022年 第43卷 第7期 4月2日出版

主管单位 中国科学技术协会  
主办单位 中国化学会 北京师范大学  
编辑出版 《化学教育(中英文)》编辑部  
编辑部地址 北京师范大学化学楼217室  
邮政编码 100875  
电话(传真) 010-58807875  
咨询信箱 hxjy-jce@263.net  
投稿网址 http://www.hxjy.chemsoc.org.cn

顾问 刘知新  
主编 刘正平  
副主编 姜雪峰 施展 孙世刚 王磊  
王祖浩 杨屹 郑长龙 朱玉军(专职)  
刊名题字 戴安邦  
印刷装订 保定市海天印务有限公司  
总发行处 中国邮政集团公司北京市报刊发行局  
订 阅 全国各地邮局

刊号 ISSN 1003-3807  
CN 10-1515/O6

国内邮发代号 2-106

国外发行代号 M3070

定价 36.00元

万方数据