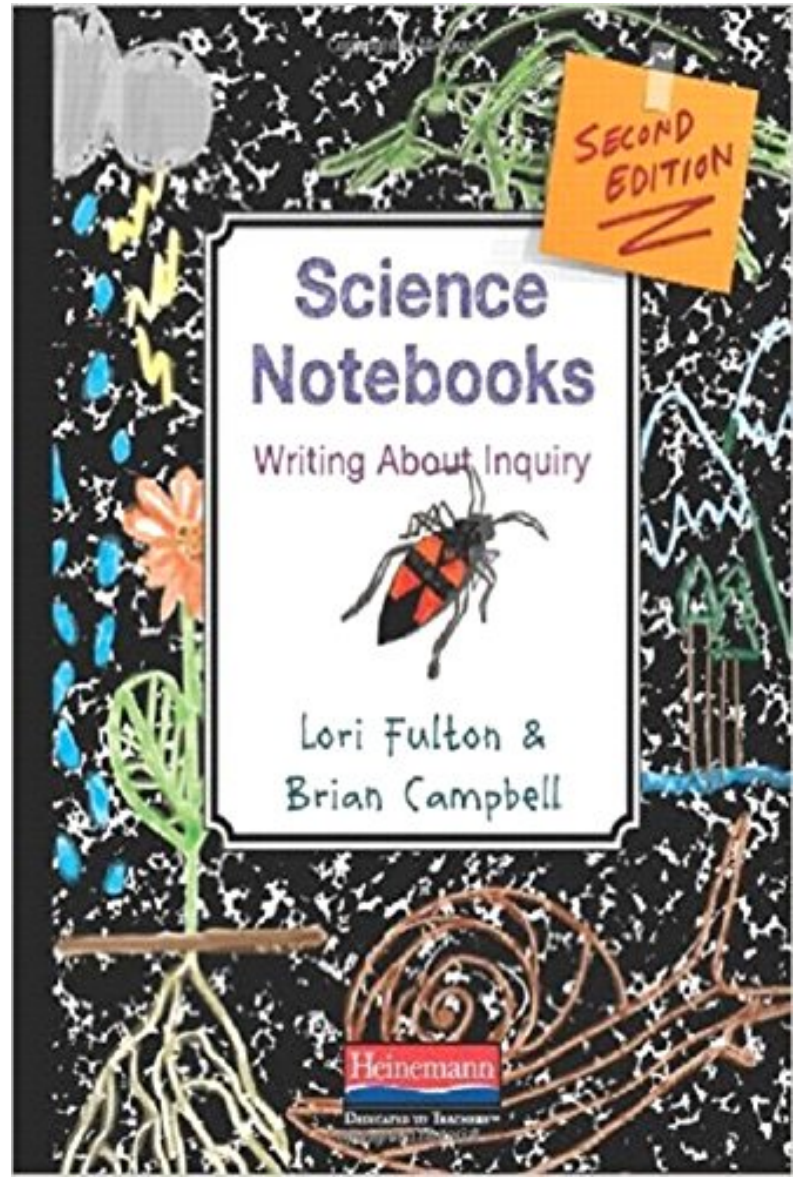
# BIBLIOGRAFIA

# Drawing for Science Education

## An International Perspective

Phyllis Katz (Ed.)

SensePublishers


SECOND EDITION
Science Notebooks
Writing About Inquiry
Lori Fulton &
Brian Campbell
Heinemann

CBE–Life Sciences Education
Vol. 14, 1–16, Spring 2015

*Essay*

# Drawing-to-Learn: A Framework for Using Drawings to Promote Model-Based Reasoning in Biology

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Submitted August 16, 2014; Revised October 3, 2014; Accepted October 11, 2014
Monitoring Editor: Mary Lee Ledbetter

# Estudiando los polinizadores en el contexto del huerto ecodidáctico universitario: presentación de una SEA

**Eugenio-Gozalbo, Marcia; Monferrer, Lidón; Ortega-Cubero, Inés; Adelantado-Renau, Mireia**

Estudiando los polinizadores en el contexto del huerto ecodidáctico universitario: presentación de una SEA
Revista Eureka sobre Enseñanza y Divulgación de las Ciencias, vol. 19, núm. 3, 2022
Universidad de Cádiz, España
**Disponible en:** https://www.redalyc.org/articulo.oa?id=92070576012
**DOI:** https://doi.org/10.25267/Rev_Eureka_ensen_divulg_cienc.2022.v19.i3.3206

# Describir y dibujar en ciencias. La importancia del dibujo en las representaciones mentales del alumnado

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Teaching and Teacher Education 34 (2013) 154–161

Contents lists available at SciVerse ScienceDirect

Teaching and Teacher Education

journal homepage: www.elsevier.com/locate/tate

# Collaboration and learning with drawing as a tool

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# Describir y dibujar en ciencias. La importancia del dibujo en las representaciones mentales del alumnado

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Conxita Márquez

# Dibujar en las clases de ciencias

INNOVACIÓN EDUCATIVA

La comunicación visual en ciencias experimentales

Educ Psychol Rev (2018) 30:1115–1137
https://doi.org/10.1007/s10648-018-9444-8

REVIEW ARTICLE

# Drawing Boundary Conditions for Learning by Drawing

**Logan Fiorella**[1] · **Qian Zhang**[1]

SCIENCE EDUCATION

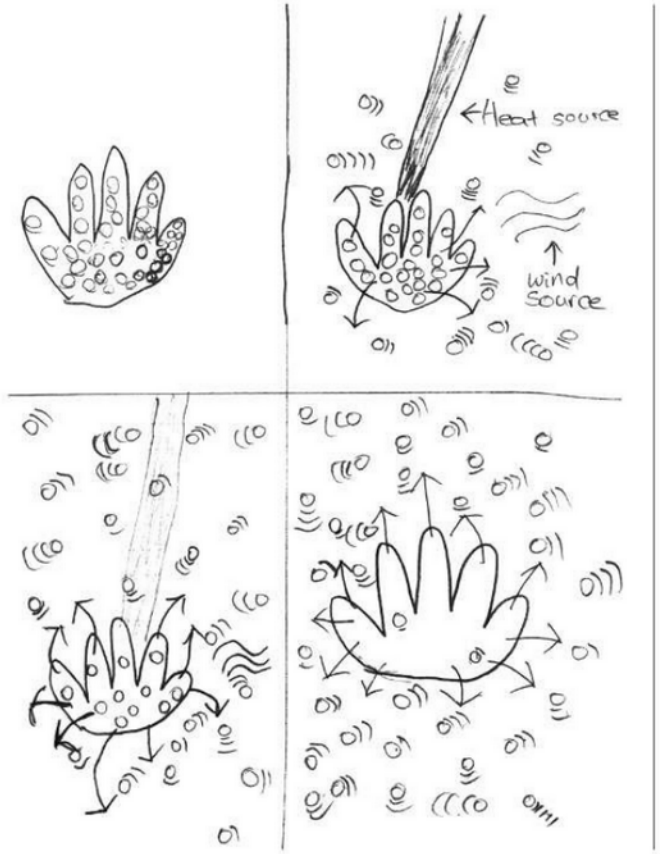
# Drawing to Learn in Science

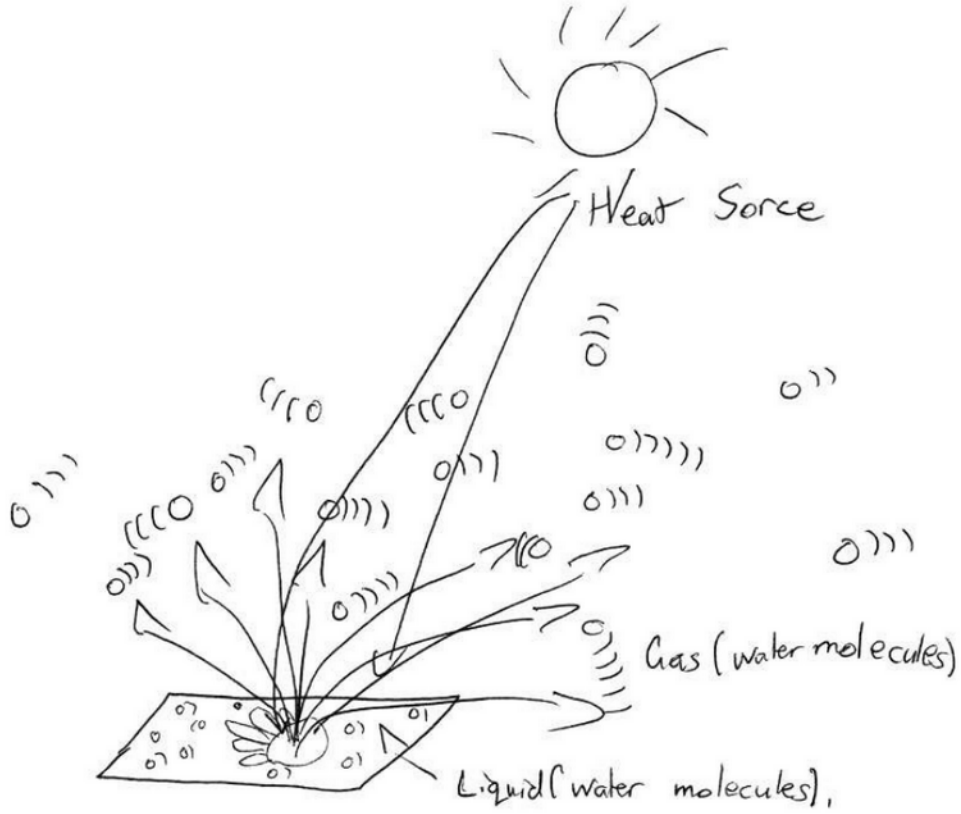
Emerging research suggests drawing should be explicitly recognized as a key element in science education.

**Shaaron Ainsworth[1]*, Vaughan Prain[2], Russell Tytler[3]**

Should science learners be challenged to draw more? Certainly making visualizations is integral to scientific thinking. Scientists do not use words only but rely on diagrams, graphs, videos, photographs, and other images to make discoveries, explain findings, and excite public interest. From the notebooks of Faraday and Maxwell (*1*) to current professional practices of chemists (*2*), scientists imagine new relations, test ideas, and elaborate knowledge through visual representations (*3*–*5*).

However, in the science classroom, learners mainly focus on interpreting others' visualiza-



JOURNAL OF BIOLOGICAL EDUCATION
https://doi.org/10.1080/00219266.2022.2081243

Routledge
Taylor & Francis Group



# *Drawing our garden's insects*: a didactic sequence to improve pre-service teachers' knowledge and appreciation of insect diversity

Marcia Eugenio-Gozalbo [a] and Inés Ortega-Cubero [b]

[a]Department of Didactics of Experimental Sciences, Social Sciences, and Mathematics. Faculty of Education of Soria, University of Valladolid, GIR SKENÉ, Spain; [b]Department of Didactics of Corporal Expression, Artistic Expression, and Musical Expression, Faculty of Education of Soria, University of Valladolid, Soria, Spain. GIR SKENÉ

Current Directions in Psychological Science
2021, Vol. 30(1) 61–67

DOI: 10.1177/0963721420979582
www.psychologicalscience.org/CDPS

# Learning by Drawing Visual Representations: Potential, Purposes, and Practical Implications

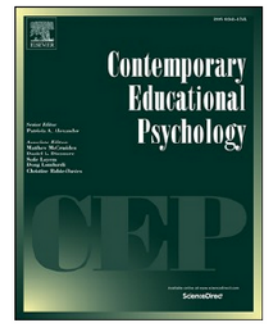
**Shaaron E. Ainsworth[1] and Katharina Scheiter[2,3]**
[1]Learning Sciences Research Institute, School of Education, University of Nottingham;
[2]Leibniz-Institut für Wissensmedien, Tübingen, Germany; and [3]Department of Psychology, University of Tübingen

Contemporary Educational Psychology 66 (2021) 101990

Contents lists available at ScienceDirect

Contemporary Educational Psychology

journal homepage: www.elsevier.com/locate/cedpsych



# Learning by drawing: When is it worth the time and effort?

Qian Zhang, Logan Fiorella *

*University of Georgia, United States*

INT. J. SCI. EDUC., 15 APRIL 2005, VOL. 27, NO. 5, 529–548

Taylor & Francis
Taylor & Francis Group

**RESEARCH REPORT**

# The visual core of science: definition and applications to education

*James H. Mathewson, San Diego State University, San Diego, CA, USA; e-mail: jmathews@mail.sdsu.edu*

The phenomena and procedures of science and technology are visual, analogical and thematic. Based on these characteristics, the visual core of science can be described in terms of 'master images' in the content of science, and 'visual processes' in the practice of science. The resulting synoptic lists provide a basis for designing instructional and communication materials.

*Environmental Education Research*
Vol. 16, No. 2, April 2010, 189–208

Routledge
Taylor & Francis Group

# The Draw-An-Environment Test Rubric (DAET-R): exploring pre-service teachers' mental models of the environment

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(*Received 27 October 2009; final version received 30 November 2009*)

# UNIVERSIDAD POLITÉCNICA SALESIANA
# SEDE CUENCA

## CARRERA DE PEDAGOGÍA

Tesis previa a la obtención del título de Licenciadas en Ciencias de la Educación

TEMA:

"EL DIBUJO SIMPLIFICADO COMO UNA ESTRATEGIA DIDÁCTICA PARA DOCENTES, PARA MEJORAR EL PROCESO DIDÁCTICO EN EL ÁREA DE CIENCIAS NATURALES DE DÉCIMO AÑO DE EDUCACIÓN GENERAL BÁSICA DEL COLEGIO MIGUEL MERCHÁN OCHOA DURANTE EL PERIODO LECTIVO 2013-2014"

AUTORAS:

Fanny Cristina Ojeda Pérez
Mónica Lorena Vázquez Torres

DIRECTOR:

Lcdo. Fernando Solórzano Martínez

CUENCA–ECUADOR

2014

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