

Logo Exchange

Journal of the ISTE Special Interest Group for Logo-Using Educators



INSIDE

- The Art of LEGO Design
- ToonTalk and Playground Presentation
- Geometric Skills
- Using Multiple Pages and Animation
- The Y2K Explorer
- AgentSheets
- What's New in MicroWorlds Pro
- Who Wants to Be a Millionaire MicroWorlds Pro Style
- Logo and High-Level Geometric Thinking
- Happy Birthday LX! StarLogoT2000 Released Logo News

Logo Exchange

Volume 18 / Number 1

Editorial Publisher

International Society for Technology in Education

Editor-in-Chief

Gary S. Stager, Pepperdine University
logoexchange@moon.pepperdine.edu

Copy Editing, Design, & Production

Ron Richmond

Founding Editor

Tom Lough, Murray State University

Design, Illustrations & Art Direction

Peter Reynolds, Fablevision Animation Studios
pete@fablevision.com

Contributing Editors

Dr. Douglas Clements, SUNY Buffalo
Dr. Carolyn Dowling, Australian Catholic University
Alan Epstein, Metasoft
Dr. Brian Harvey, U.C. Berkeley
Daniel E. Kinnaman, Curriculum Administrator Magazine
Dr. Julie Sarama, Wayne State University

International Editor

Jeff Richardson, Monash University, Australia

International Editor Emeritus

Dennis Harper, Olympia, Washington School District

SIG Logo Officers

Jeff Richardson, President
Steve Costa, Vice-President
Hope Chafian, Secretary/Treasurer
Gary S. Stager, Editor

SIG Coordinator

Tom Magness

1999-2000 ISTE BOARD OF DIRECTORS

Heidi Rogers, President University of Idaho
John Vaille, Chief Executive Officer ISTE

Executive Board Members

Lynne Schrum, Past President University of Georgia-Athens
Cathy Gunn, Secretary Illinois Virtual Campus
Michael Turzanski, Treasurer CISCO Systems (MA)
Chip Kimball, At-Large Lake Washington School District (WA)
Jan Van Dam, At-Large Oakland Schools (MI)

Board Members

Larry Anderson Mississippi State University
Marianne Handler National-Louis (IL) University
Kathy Hurlley The Learning Company (MD)
Pam Korporaal Norwalk-La Mirada USD (CA)
Cheryl Lemke Milken Family Foundation
David Moursund (ex officio) ISTE
Jorge Ortega Leon County School District (FL)
Marilyn Piper Washington Middle School (WA)
Sue Waalkes Upper Dublin School District (PA)
Peter Wholihan Department of Education (Virgin Islands)
Cheryl Williams National School Boards Association (VA)

ISTE Committees

Lajeane Thomas Accreditation and Standards
Dave Brittain Awards
Cathy Gunn Distance Learning
Michael Turzanski Finance
Paul Resta and Gerald Knezek International
Jenelle Leonard Minority Affairs
Lary Smith Policies and Procedures
M. D. Roblyer Publications

Logo Exchange is published quarterly by the International Society for Technology in Education Special Interest Group for Logo-Using Educators. *Logo Exchange* solicits articles on all aspects of Logo use in education.

Submission of Manuscripts

Manuscripts should be sent by surface mail on a 3.5-inch disk (where possible). Preferred format is Microsoft Word for the Macintosh. ASCII files in either Macintosh or DOS format are also welcome. Submissions may also be made by electronic mail. Where possible, graphics should be submitted electronically. Please include electronic copy, either on disk (preferred) or by electronic mail, with paper submissions. Paper submissions may be submitted for review if electronic copies are supplied on acceptance.

Send surface mail to:

Gary S. Stager
21825 Barbara St.
Torrance, CA 90503 USA

Send electronic mail to:
logoexchange@stager.org

Logo Exchange is published quarterly by the International Society for Technology in Education (ISTE), 1787 Agate St., Eugene, OR 97403-1923, USA; 800.336.5191.

ISTE members may join SIG/Logo for \$24. Dues include a subscription to *Logo Exchange*. Non ISTE member subscription rate is \$34. Add \$10 for mailing outside the USA. Send membership dues to ISTE. Add \$4.00 for processing if payment does not accompany your dues. VISA, MasterCard, and Discover accepted.

Advertising space in *Logo Exchange* is limited. Please contact ISTE's director of advertising services for space availability and details.

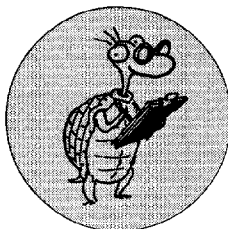
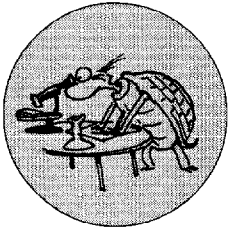
Logo Exchange solicits articles on all topics of interest to Logo-using educators. Submission guidelines can be obtained by contacting the editor. Opinions expressed in this publication are those of the authors and do not necessarily represent or reflect official ISTE policy.

© 2000 ISTE. All articles are copyright of ISTE unless otherwise specified. Reprint permission for nonprofit educational use can be obtained for a nominal charge through the Copyright Clearance Center, 27 Congress St., Salem, MA 01970; 508.750.8400; Fax 508.750.4470. ISTE members may apply directly to the ISTE office for free reprint permission.

POSTMASTER: Send address changes to *Logo Exchange*, ISTE, 480 Charnelton St., Eugene, OR 97401-2626 USA. Periodicals postage paid at Eugene, OR. USPS# 000-554. ISTE is a nonprofit organization with its main offices housed at the University of Oregon. ISSN# 0888-6970.

This publication was produced using Aldus PageMaker®.

Contents



ARTICLES

The Art of LEGO Design <i>Fred Martin</i>	5
The ToonTalk and Playground Presentation at Logosium <i>Ken Kahn</i>	13
The Y2K Explorer <i>Patrick Mahaey</i>	17
AgentSheets: End-User Programmable Simulations as Interactive Media <i>Alexander Repenning</i>	19
Use Multiple Pages and Animation Together, or building games in MicroWorld without tears <i>Jeff Richardson</i>	25
What's New in MicroWorlds Pro <i>Gary Stager</i>	27
MicroWorlds Tutorial: Functions and Graphing <i>Gary Stager</i>	29
Who Wants to Be a Millionaire MicroWorlds Pro Style? <i>Anonymous and Gary Stager</i>	30

COLUMNS

EDITORIAL

Happy Birthday Logo Exchange!

Gary S. Stager 2

QUARTERLY QUANTUM

A Terminal Case of Logo

Tom Lough 3

LOGO NEWS

Logo Exchange Staff 4

STARLOGO STARTERS

StarLogoT2000 Released

Uri Wilensky 15

LOGO: SEARCH AND RESEARCH

Logo and High-level

Geometric Thinking

Douglas H. Clements
and Julie Sarama 23

ISTE BRINGS THE WORLD OF TECHNOLOGY CLOSER TO YOU.

By drawing from the resources of committed professionals worldwide, ISTE provides support that helps educators like you prepare for the future of education.

As an ISTE member, you benefit from a wide variety of publications, national policy leadership, and our work with Teacher Accreditation.

You also enjoy exciting conferences, global peer networking, and graduate-level Distance Education courses.

So if you're interested in the education of tomorrow, call us today.



iste International Society for
Technology in Education

Teachers Helping Teachers Use Technology in the Classroom

WE'LL PUT YOU IN TOUCH WITH THE WORLD.



iste

International Society for Technology in Education

Administrative Office

1787 Agate Street, Eugene, OR 97403-1923 USA

Non-Profit
Organization
US Postage
PAID
ISTE