



ONLINE



**TEACHERS  
DEVELOPMENT GROUP**

A non-profit organization  
dedicated to improving  
all students' mathematical  
understanding and achievement  
through meaningful, effective  
professional development

# Using Patterns to Develop Algebraic Thinking in Middle Grades

## ABOUT THIS ONLINE WORKSHOP

This workshop provides an opportunity for middle grades educators to explore the use of patterns to develop their students' capacity to think algebraically. You will explore ideas and questions related to the nature of algebraic thinking, the relationship between mathematical thinking and algebraic thinking, and methods for encouraging the development of algebraic thinking in middle school students. You will interact online with other workshop participants and your instructor to discuss readings, classroom video clips, and examples of student work while learning to –

- recognize and build on opportunities for algebraic thinking in a variety of mathematical contexts
- analyze your students' algebraic thinking
- pose questions that foster the development of algebraic thinking

A relevant class project will support you in incorporating algebraic thinking in your everyday instruction.

## PARTICIPANTS

Middle grades teachers of mathematics, math coaches, curriculum and professional development specialists, special educators, and instructional assistants. Participation by school/district teams is encouraged. To complement the online work, teams may wish to meet face-to-face to explore course math tasks and/or readings and assignments.

## SITE

Online

## INSTRUCTOR

### MARIE FRANZOSA AND DIANNE HART

both teach mathematics at Oregon State University, and have a special interest in mathematics for elementary teachers and the development of online professional community. Both were faculty members for the highly successful Oregon Mathematics Leadership Institute, a 5-year National Science Foundation project to deepen K-12 teachers' knowledge of mathematics and school leadership.

## DATES

September 29 - November 16, 2010

## OPTIONAL UNIVERSITY CREDIT

Mth 810, Portland State University, 3 quarter-hours graduate credit. Pay \$165 for optional PSU credit at first institute session.

## QUESTIONS

Contact Julie Fredericks  
Email, [julie.fredericks@teachersdg.org](mailto:julie.fredericks@teachersdg.org)  
Local Phone, 503-650-1914  
Toll-free, 877-650-1914

## COST AND REGISTRATION

\$300 per person if registration received on or before September 15, 2010.

\$350 per person for registrations received after September 15, 2010.

Register online, [www.teachersdg.org](http://www.teachersdg.org), prior to September 29, 2010.

Cancellations: If you must cancel, a substitute is welcomed. Otherwise, \$50 is nonrefundable; all additional payments are fully refundable prior to the workshop start date, non refundable thereafter.