

*Washington Community College
Mathematics Retreat 2000*



*Wenatchee, WA
May 4, 5 & 6*

*Colleagues, Conversation and Connections
a mathematical potlatch*

organized by Bellevue Community College

<http://SciDiv.bcc.ctc.edu/Math/>

pot·latch \ pŏt' lăch' \ *n.* 1: a ceremonial feast among Indian tribes living on the northwest Pacific coast in which the host distributes gifts requiring reciprocation 2 *Northwest*: a social event or celebration

Extracurricular Activities

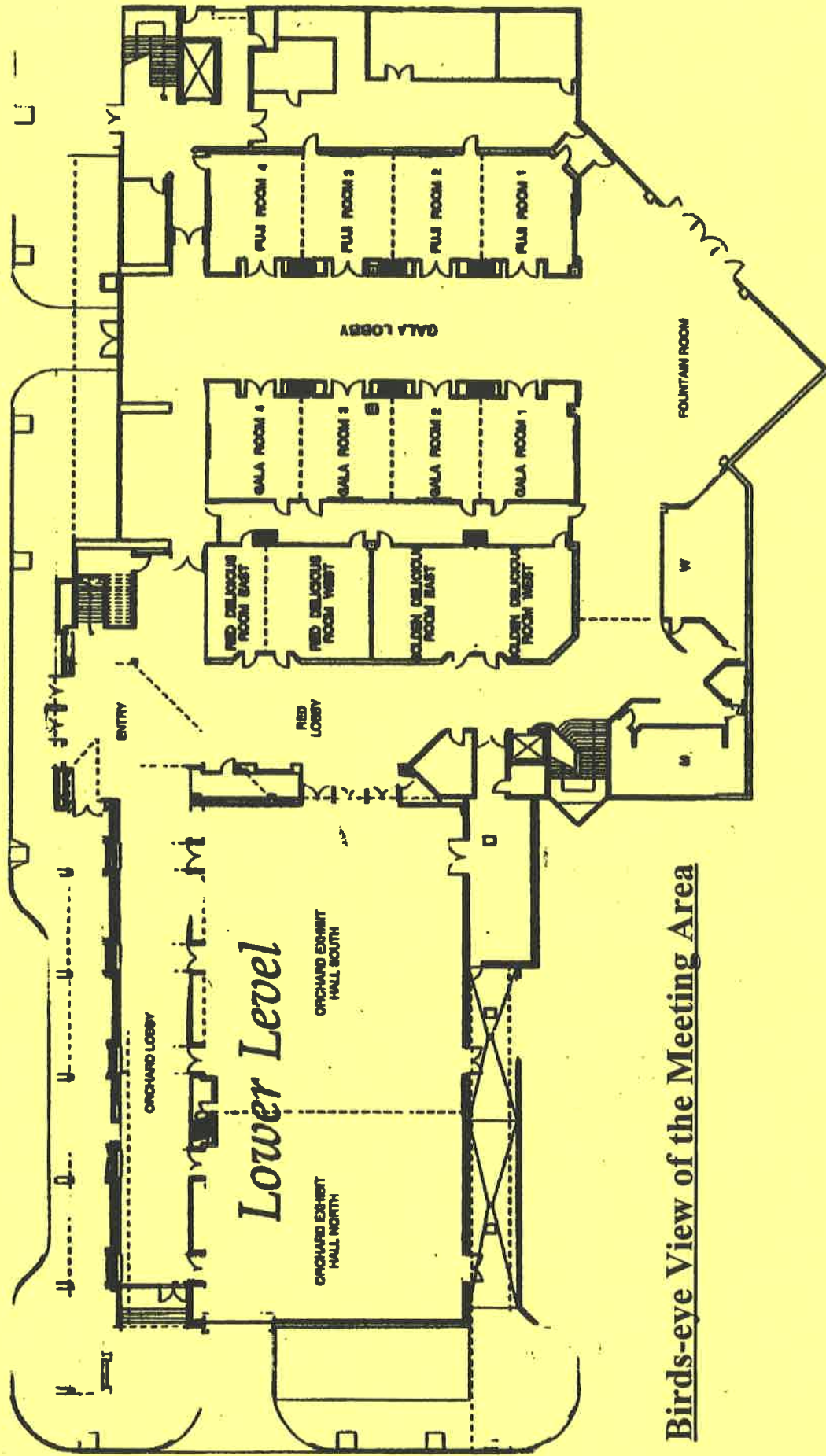
Social sponsored by Brooks Cole/Thompson Learning	Thursday, 8:30 – 11:00 p.m. Orchard Lobby
Exhibitor displays	open from 9:00 a.m. Friday and Saturday Fuji Rooms 3 & 4
Pre-banquet social	Friday afternoon, 5:00 – 5:45 Orchard Lobby
DJ music sponsored by McGraw-Hill	Friday evening, 8:30 – 11:00 Orchard Exhibit Hall South
WAMATYC bring-your-breakfast meeting	Saturday, 8:30 – 9:00 a.m. Red Delicious West

The game is afoot. Whether to play or not to play, that is the question.

Check out the GAMES packet in the inside pocket of the front cover of your notebook. From mathematical word games to picture puzzles, from mathematical history to pop culture, from mathematical verse to some real live problems – there are 9 contests that you (or teams of youse guys) can enter. You don't have to play, but there are some big-time prizes at stake, so don't take this lightly. Awards will be made at each meal, starting at lunch on Friday. Those of you whose competitive fires are not so easily kindled can still win valuable trinkets by just showing up for meals. There will be random drawings every time you turn around.

Just to keep you on task and out of mischief, here's a schedule for submitting contest entries. Deposit your entries in the box just outside Orchard South. No late papers!

<u>Game</u>	<u>Entries due at</u>	<u>Prizes awarded at</u>
Mathematical Tribonds	11 a.m. on Friday	lunch on Friday
Mathematical Rebuses	2 p.m. on Friday	dinner on Friday
Mathematical Quotes	2 p.m. on Friday	dinner on Friday
Mathematical Mug Shots	2 p.m. on Friday	dinner on Friday
Mathematical Jumbles	10 p.m. on Friday	breakfast on Saturday
Math in the Movies	10 p.m. on Friday	breakfast on Saturday
Mathematical Riddles	10 p.m. on Friday	breakfast on Saturday
Mathematical Limericks	9 a.m. on Saturday	lunch on Saturday
Mathematical Six-Pack	9 a.m. on Saturday	lunch on Saturday



Birds-eye View of the Meeting Area

All sessions, meals and other activities will be held on the lower level of the Conference Center, across the skyway from the hotel.

INVITED SPEAKERS

Mark Nielsen

1:30 Friday & 10:30 Saturday

Mark Nielsen is an associate professor of mathematics at the University of Idaho, where he has been since obtaining his Ph.D. from the University of Washington in 1990. His research interests include discrete geometry, combinatorial geometry and convexity. Other professional interests include working on a geometry text and conducting the "Internet Math Challenge," a web-based problem-solving contest for high school students. His non-professional interests are oil painting, music composition, antique book restoration, and camping and hiking with his family.

Ivars Peterson

7:30 Friday & 9:30 Saturday

Ivars Peterson writes about mathematics and computers for Science News in Washington, D.C., and serves as editor of Science News Online. His books include The Mathematical Tourist, The Jungles of Randomness and Newton's Clock. His online mathematics column, "MathTrek," appears weekly at <http://www.maa.org/news/columns> and elsewhere. He also writes math articles for the children's magazine Muse, and has collaborated with his wife, Nancy Henderson, on Math Trek: Adventures in the MathZone (<http://home.att.net/~mathtrek/>), which introduces some aspects of modern mathematics to children, ages 10 and up. A former high school science teacher, Ivars enjoys orienteering, camping, cycling, and playing soccer and basketball with sons, Eric and Kenneth. While Eric earned his black belt in tae-kwan-do, Ivars got his red belt before creaky knees did him in.

Ken Ross

7:30 Thursday & 10:30 Saturday

Ken Ross was an over-achieving youngster who evolved into an adult workaholic. He has loved teaching for 44 years, 35 at the University of Oregon, but is looking forward to semi-retirement. Right now he's teaching his last course at the University of Oregon, a freshman seminar on "Statistics and Mathematics of Baseball." This has caused him to pay more attention to the baseball scene than he has for the past 20 years (since his girls left home). He likes most teams, but the last World Series created a conundrum for him until he settled on the strategy of always rooting for the visiting team. At the national level, he has served as AMS Associate Secretary ('71 - '80), MAA Secretary ('84 - '89), MAA Associate Secretary ('90 - '93), and MAA President ('95 - '96). Now his main MAA activity is as an editor, something he's always wanted to do. Along the way, he's also written a few books: Abstract Harmonic Analysis I & II (with Edwin Hewitt); Elementary Analysis: the Theory of Calculus; and Discrete Mathematics (with Charles Wright).

Brian Winkel

9:00 Friday & 9:30 Saturday

Brian Winkel received all his degrees in mathematics and has taught mathematics all of his professional life. He has worked at the National Security Agency; designed and led workshops on modeling for science faculty; led national curriculum reform in science, engineering, and mathematics; authored a number of NSF grants in reform education, assessment/evaluation, and problem generation; taught at a liberal arts college, an engineering institute, and a military academy; founded three journals, two of which are in operation -- PRIMUS and Cryptologia. He enjoys nothing more than sharing ideas on teaching mathematics better.

Thursday afternoon, 3:00 – 5:00

Preconference Workshop: Geometric Reasoning in 3-Space

Caspar Curjel, Eves Nievergelt & Rose Pugh, UW, EWU & Bellevue CC ***Golden Delicious***

Hands-on practice with problems that require geometric reasoning in 3-space. This workshop explores in greater detail the ideas presented by Rose and Caspar at last year's retreat. This material lends itself to many different levels of mathematics: systems of linear equations in pre-calculus; subspaces in linear algebra; the geometry of multivariable calculus; etc. Participants will have ample opportunity to work on sample exercises. Even those who attended last year's talk and/or workshop will find new problems to explore. Extracts from the now complete draft of Rose's and Caspar's manual for teachers will be made available to workshop participants.

Thursday evening, 7:30 – 8:30

A Tribute to Ivan Niven

Ken Ross, University of Oregon

Orchard North

This will be a reminder of the many contributions this fine gentleman made to our profession at all levels: national, Pacific Northwest, University of Oregon, outstanding lectures, expository books and papers, support of education. In addition, I will talk about some parts of his research work that had an impact on my career even though I am not a number theorist.

Friday morning, 9:00 – 9:50

Complex Problem Solving by Our Students

Brian Winkel, United States Military Academy

Orchard North

We examine the value of assigning complex problems which use technology to our students. We need to put the mathematics we teach in context and require students to use appropriate mathematical tools, as they see fit, in the setting of larger problems. We give illustrations of such problems with attention to mathematical content, reinforcement of fundamental skills and principles, just-in-time learning, and assessment values.

Friday morning, 10:00 – 10:50

A Geometry Course for First Year Students

Bobby Righi, Seattle Central CC

Fuji 1 & 2

A description of a one-quarter geometry course at Seattle Central using Geometer's Sketchpad. Students in this class range from math anxious to calculus competent, but they all find something to awake their mathematical imaginations and sense of inquiry. Geometry is essential to many human activities, and it is deeply embodied in how humans think. Bring the playfulness and excitement of dynamic geometry back into mathematics!

Square-Banded Polygons and Affine Regularity

Duane DeTemple, Washington State University

Gala 1 & 2

A polygon is *square-banded* if squares are erected on all of its sides. Additional bands can then be constructed by erecting squares on the vertices of successive squares in any given band. Square banded m -gons have a number of surprising properties. The ratio of the sum of the areas of the squares in the second band to the sum of the areas of the squares in the first band is bounded below by $4\sin^2(\pi/m)$. Equality holds if and only if the base polygon is the image of a regular m -gon under a linear transformation and a translation. Other properties of square-banded polygons involve the Fibonacci numbers, tiling patterns, and Chebyshev polynomials.

Sums of Powers of the First n Natural Numbers

Andre Yandl, Seattle University

Gala 3 & 4

Formulas for expressing $1^k + 2^k + 3^k + \dots + n^k$ ($k = 1, 2 \& 3$) as a polynomial in n appear in most textbooks that cover mathematical induction or the Riemann integral. Students often wonder how mathematicians have been able to conjecture what the formulas ought to be. The C.R.C. Tables exhibit formulas for values of k up to 10. There are some nice explanations in the literature for the $k = 1, 2$ and 3 cases. I will discuss a way to obtain and prove the formulas for any natural number k .

Factoring and the Standards: Implications and Recommendations

Laura Bracken & Ed Miller, Lewis-Clark College

Golden Delicious

The AMATYC Standards call for decreased attention to factoring in foundation courses. We look at the implications of decreased attention to factoring on future mathematics course work. An approach to teaching factoring that requires decreased, but sufficient, attention will be demonstrated and discussed.

Birds of a Feather discussion: The Use of Technology and Testing

Laura Moore-Mueller, Green River Community College

Red Delicious West

Skill-and-drill versus conceptual thinking; the role of HP49's and TI 89/92; etc.

Friday morning, 11:00 – 11:25

Accessible Models for a First Course in Differential Equations

Janet Ray, Seattle Central CC

Fuji 1 & 2

Differential equations are routinely used to solve interesting, non-trivial problems. Special purpose software, modern textbooks, and a variety of supplementary materials allow the study of many of these problems even in an introductory course. Using a simple numerical solver (ODE Architect) we will analyze such diverse models as lead in the body, predator-prey relationships, competing stores, and air-conditioning a house. (There will be time to play with the software immediately following the talk and also later in the afternoon.)

A King's Tour on Hexagonal Chess Boards

John Reay, Western Washington University

Gala 1 & 2

A King on a chess board wants to take a tour of every position, visiting each position exactly once, and finally returning to the starting position -- a Hamiltonian circuit. Its existence depends on the size and shape of the board. The characterization of rectangular chess boards that allow a King's tour is an open problem. If the chess board is made-up of hexagons, is convex and 2-connected, then it has a King's tour -- with one exception!! Can you find it?

The Precalculus Presentation of Complex Numbers

Ed Moats, South Seattle CC

Gala 3 & 4

Typical presentations of complex numbers are both historically and mathematically misleading. Students never learn what a complex number IS. I postpone complex numbers until students have heard about 2-dimensional vectors, right after right triangle trigonometry. This allows them to see six different notations simultaneously, greatly enhancing their understanding, and providing a wide choice of notations, appropriate to a specific application. I will incorporate ideas from Needham's *Visual Complex Analysis*, and Stillwell's *Mathematics and its History*.

Getting Students Active in Assessment

Pat Averbeck, University of Washington

Golden Delicious

A grading method will be discussed that transforms the process of returning tests into a learning experience. This method engages students through "petition" partial credit, where students identify their mistakes and explain their work. This method also encourages students to focus on test content, rather than their score, and thus minimizes confrontations with students about their test scores. Birds of a Feather discussion will follow immediately in Red Delicious Room.

Friday afternoon, 2:30 – 3:20

Maple Modules for Linear Algebra

Sanford Helt & Mike Pepe, Seattle Central CC

Fuji 1 & 2

Faculty from Grinnell, U of W and Seattle Central have developed an interactive linear algebra text using Maple. The text consists of 27 Maple modules (worksheets). It has been used to supplement a traditional textbook and as the primary text for a standard linear algebra course. We will demonstrate some of the modules and discuss our teaching experiences using these materials. For more info see: <http://www.awl.com/hepg/lamp/index.htm>

Maximum Volume Boxes, With and Without Toppes

The Poet, formerly known as Larson, formerly of Green River CC

Gala 1 & 2

The problem of creating the box of maximum volume from a square or rectangle by removing little squares from the corners is well-known. Not so well known is the problem of creating maximal volume polygonal boxes, pyramidal boxes by removing portions of a 2-dimensional lamina and folding-up the sides. A surprising solution to an old problem is discovered, and some interesting generalizations, suitable for student investigation, will be presented.

Resampling Statistics: Bootstrap and Jackknife Methods

C. T. Lin, Central Washington University

Gala 3 & 4

The bootstrap is a new and powerful computer-based method for statistical analysis. It allows researchers to explore data and draw valid statistical inferences without worrying about mathematical formulas and derivations. A comparison of bootstrap and jackknife methods will be presented.

Assessment of Systemic Math Reform

Ilgia Ross, Portland CC

Golden Delicious

During the past five years, Portland Community College has implemented systemic reform in its mathematics program. Data has been collected and compiled on student success, retention and progression, and on the effect of the tutoring center. Implementation of curricular reform has been assessed through student surveys and faculty surveys. The talk will include methods of data collection and a presentation of results.

Friday afternoon, 3:30 – 3:55

Playtime with Geometer's Sketchpad, Maple & ODE Architect
Helt, Pepe, Ray & Righi, Seattle Central CC

Fuji 1 & 2

A chance to get your hands on the software you've seen demonstrated.

Quantitative Environmental Learning Project (QELP)
Joe Hull & Greg Langkamp, Seattle Central CC

Gala 1 & 2

For three years we have taught an interdisciplinary course integrating mathematics with environmental science. At the heart of our course is a weekly exercise, where students use basic statistics and college algebra to analyze real geological, physical, chemical and biological data. We will describe our course, exercises, and QELP, a 2 year project, funded by the NSF, to refine and disseminate our materials. Please visit <http://seattlecentral.org/qelp> for sample materials

Publishing Mathematical Trade Books
Cal Clawson, Bellevue CC & South Seattle CC

Gala 3 & 4

Recollections of an author. A look at the absurdity and randomness of writing and publishing a non-fiction book. The writing process. The connecting idea or theme. How to prepare a book proposal. What to include and what to leave out. The marketing process. Finding an agent or publisher. Reviewing the book contract. Royalty advances and deadlines. The book production cycle. Reviews, sales and shelf life.

The Community College's Role in Teacher Education
Christie Gilliland, Joyce Hammer & Steve Kinholt, Green River CC

Golden Delicious

A brief update on Project TEACH, an NSF-funded effort at GRCC, aimed at increasing the role of cc's in teacher education. We're trying to include other cc's in future plans. After the talk please join us in the Red Delicious Room for a Birds-of-a-Feather discussion. Share what your campus is doing on the teacher education front, and help us plan where to go from here.

Coping with Math Anxiety: A One Credit Course
Emily Woods, Peninsula College

Red Delicious West

Many otherwise intelligent and capable people react so negatively to math that their ability to concentrate and learn mathematics effectively is impaired. They misinterpret their negative attitude toward math as a lack of aptitude. At Peninsula College, in a one credit course entitled, Overcoming Math Anxiety, students explore the causes of their math anxiety and learn ways to cope with their anxieties so that they can achieve their academic goals.

Friday afternoon, 4:00 – 4:55

More Playtime with Geometer's Sketchpad, Maple & ODE Architect
Helt, Pepe, Ray & Righi, Seattle Central CC

Fuji 1 & 2

Exhibitor demo: A Complete Learning System for Developmental Mathematics
McGraw-Hill

Gala 1 & 2

ALEKS (an acronym for Assessment and Learning in Knowledge Spaces) is a powerful artificial intelligence system which can quickly and precisely assess what a student knows and then provide individualized instruction in basic math and algebra. ALEKS is web-interactive, uses a standard browser, and requires set-up or licensing fees. <http://www.mhhe.com>

Exhibitor demo: Online Math
TDLC.COM (Larson Texts, Inc.)

Gala 3 & 4

This comprehensive, mastery-driven, internet-based tutorial program covers all of basic math, prealgebra, and the first half of algebra 1. It is correlated to every major developmental math textbook. Each of the 20 (160 topics) modules is separated into skill-building and problem-solving categories. No CDs or installations; all material is hosted on our server.

Exhibitor demo: Mediated Math
Academic Systems

Golden Delicious

Birds of a Feather discussion: CC's Role in Teacher Education
Gilliland, Hammer & Kinholt, Green River CC

Red Delicious West

Friday evening, 7:30 – 8:30

Moebius Fantasies and Other Excursions into Mathematical Art
Ivars Peterson, Science News

Orchard North

Tour fascinating nooks and crannies of a realm in which mathematics inspires art and art inspires mathematics. This talk highlights the work of several contemporary mathematicians and artists and provides glimpses of topics ranging from Moebius strips to hypercubes.

Saturday morning, 9:30 – 10:20

The Jungles of Randomness
Ivars Peterson, Science News

Fuji 1 & 2

The realm of slot machines, random number generators, and dice illuminates various aspects of randomness and chance in everyday life. Distinguishing between what we can and cannot know, however, is no simple matter.

Student Consultants and Peer Grading - Two Practical Learning Activities

Brian Winkel, United States Military Academy

Gala 1 & 2

We present two learning activities that anyone can use to enhance student learning. Putting students in the role of consultants gives them practical experience in interviewing, extracting essential information, modeling, and writing for audience. Peer grading gives students the opportunity to really learn a topic well, see other students' work, and gain confidence in their ability to offer constructive feedback.

Tessellating Space with Polyhedra

Jeanette Martin & Kimberly Vincent, Washington State University

Gala 3 & 4

Discover the five possible tessellations of space with regular or Archimedean polyhedra in which each vertex and edge is identical. This exploration was designed to study dihedral angles, while encouraging exploration and examining meaningful applications of dihedral angles, as well as strengthening spatial visualization skills. Come discover generalizations from two-dimensions to three. In this workshop, participants will explore, then we will share the results of using this activity in Math for Elementary Teachers.

The Appropriate Use of the Distributive Property

Gregg Harbaugh, Eastern Washington University

Golden Delicious

We demonstrate a practical approach to strengthening algebra students' comprehension of the language of mathematics. When asked to solve $x(1 - y) = y$ and $x = y(1 + x)$ for x , students get confused about when to distribute and when not to distribute. Developmental algebra students can learn to handle such problems efficiently and accurately in a traditional lecture format, if material is presented with a strong foundation in the semantics of mathematical language, supported by peer assisted learning strategies, and supplemented with self-directed discovery techniques. This presentation will be interactive, and attendees will receive a packet of materials.

Birds of a Feather discussion: Extra-Credit Projects

Kent Brauning, Peninsula CC

Red Delicious West

Share your bonus challenge opportunities for talented students and desperate students.

Saturday morning, 10:30 – 10:55

Tiling Plane Sets with Closed Segments

Mark Nielsen, University of Idaho

Fuji 1 & 2

A subset of the plane is *segment tilable* if it can be written as the disjoint union of some collection of closed line segments. If each segment in the collection has length at least δ , then the set is δ -*segment tilable*. We have been able to show: all open sets are segment tilable, but not δ -segment tilable unless their boundary is quasi-polygonal; all "nice" closed sets are segment tilable; many geometrically nice sets are δ -segment tilable; some sets are not segment tilable. Many interesting open questions remain.

Freshman Seminars at the University of Oregon

Ken Ross, University of Oregon

Gala 1 & 2

A brief description of the Freshman Seminar program at the U of O. I gave the freshman seminar, "Games, Gambling and Chance" in the spring of 1997, and I will give "Statistics and Mathematics of Baseball" this spring. Information about the latter can be found at my web site: <http://darkwing.uoregon.edu/~ross1/>

You Are Here: New Maps for Success in College

Jane Lane, Eastern Washington University

Gala 3 & 4

Are students navigating college math courses with a high school map? We will explore the differences between high school and college math courses and why students struggle with course material and instructors' expectations. We will then suggest some ideas that help students construct new maps that will better prepare them for success in higher education.

Ideas for Math for Elementary Teachers Courses

Gail Nord, Gonzaga University

Golden Delicious

Some hands-on activities will be presented for the elementary school teacher to use in their classroom. These ideas motivate the teacher to learn the mathematics.

Birds of a Feather discussion: Developmental Math Potluck

Valerie Morgan-Krick, Tacoma CC

Red Delicious West

This will be an informal, interactive "show-and-tell time" for people who are especially interested in developmental mathematics, a chance to share what works for you with lower-level students and find out what others are doing. If you have handouts, manipulatives, or whatever that you've found really work, bring along enough of them to share with others.

Saturday morning, 11:00 – 11:25

Using MS Excel in Business Calculus Labs

Heather McGilvray, Seattle University

Fuji 1 & 2

It can be quite challenging to engage result-focused business majors in learning calculus. I have had success using weekly computer labs, which have a corporate flavor to spark student's interests and provide concept exposure. I structure labs around MS Excel, rather than traditional mathematics software. My goal is to introduce students to Excel (predominant in business) and mathematics to model phenomenon.

SSCC's Distance-Learning Online Math Class

Marjie Vittum-Jones, South Seattle CC

Gala 1 & 2

For the last year and a half SSCC has offered five levels of mathematics using "canned" materials in a distance-learning, on-line format. Learn about the instructor's role, class management techniques, instructor and student expectations, statistics, and some anecdotal observations.

How to Solve Some of Your Placement Problems

Ed Moats, South Seattle CC

Gala 3 & 4

A student is properly placed when challenged but not overwhelmed. Lower division math classrooms are littered with under-placed and over-placed students. Over-placement leads to demoralization, anxiety, and determination to quit math ASAP. Under-placement leads to over-confidence, arrogance, boredom, disruption, and irritation and demoralization of other students. I suggest cost-effective supplements to placement testing programs that can markedly decrease misplacement of students.

Running around Lake Waughop with a Rotting Piece of Fruit

Vauhn Wittman-Grahler, Pierce College

Golden Delicious

What do a global positioning satellite system, a piece of fruit, and a running math teacher have in common? Students use all of these to collect data for calculus projects. We present lab that involve data collection, data analysis, and appropriate application and interpretation of calculus techniques. Projects address both single-variable and multivariable calculus. In addition, classroom management strategies for data collection sessions will be discussed.

Birds of a Feather Developmental Math Potluck -continued

Valerie Morgan-Krick, Tacoma CC

Red Delicious West

Conference Participants

Invited Speakers and Guests

Barbara Nielsen
Mark Nielsen
Ivars Peterson
Ken Ross
Ruth Ross
Brian Winkel
Phyllis Winkel

Big Bend Community College

Donna Brown
Kathleen Durall
Sonia Farag
Jim Hamm
Brinn Harberts
Anita Hughes
Barbara Jacobs
Stephen Lane
Therese Slate
Barb Whitney

Bellevue Community College

Marilyn Anderson
Pete Bloomsburg
Calvin Clawson
Kathy Curnutt
Larry Curnutt
Susan Gronlund
Becky Hewitt
Dale Hoffman
Jennifer Laveglia
Joyce Lee
Pam Lowry
Sasha Malinsky
Dianne Pratt
Rose Pugh
Peter Ratener
Jim Relf
Judie Relf
John Rucker
Lynne Sage
Caroline Shook
David Stacy
Linda Stacy
Larry Susanka
Marilyn Tober
Dana Updegrove

Columbia Basin College

Meg Gamon
Mantu Jindal
Gary Olson

Clark College

Aaron Bingham
Paul Casillas
Mark Elliott
Marina Frost
Dale Hoover
Louise Hoover
Sally Keely
Bill Monroe
Tracy Nehnevaj
Wes Orser
Dennis Watson

Central Washington University

Fred Cutlip
Cen-Tsong Lin

Everett Community College

Jeff Crabill
Susan Cross
Wendy Houston

Edmonds Community College

David Adams
Robert Dixon
Jeff Eldridge
Jim Francis
Dave Himes
Deann Leoni
Melissa Mackay

Eastern Washington University

Jacqueline Coomes
Jane Lane
Yves Nievergelt

Gonzaga University

Gail Nord

Grays Harbor Community College

Patricia Dutro
Lynn Siedenstrang

Green River Community College

Steven Black
Christie Gilliland
Donnie Hallstone
Joyce Hammer
Steve Kinholt
Larry Larson
Heidi Lyman
Rochelle Mitchell
Laura Moore-Mueller
David Nelson

Highline Community College

Helen Burn
Karen Frank
Gregg Harbaugh
Brian Hogan
Pat Hogan
Barbara Hunter
Han Lim
Terry Meerdink
Ed Morris
Richard Plagge
Nirmala Savage
Erik Scott
Olga Shatunova
Mark Taylor
Allan Walton
Joe Wilcox

ITT Technical Institute

Laura Rock

Lewis - Clark College

Laura Bracken
Edward Miller

North Idaho College

Paula Atkison
Susanne Bromley
Cheryl Cunningham
Barb Davis
Angela Earnhart
Jocelyn Fish
Janet Gossett
Edwina Stowe
Robert Vogeler

North Seattle Community College

Earl Hamilton
 Ralph Jenne
 Hon Li
 Pam Lippert
 Vicky Ringen
 Harry Watts

Olympic

Mike Dodge
 Karen Hulsebosh
 Glenlee James
 Eric Johnson
 William Miller
 Scott Niven
 Leo Maki
 Margret Maki

Peninsula College

Kent Brauningner
 Mike Daniel
 Gary Melendy
 Larry Smith
 Emily Woods
 Mike Woods

Pierce College

Kelly Brooks
 Sharon Camner
 Mary Chu
 Michael Coffey
 Diane Downie
 Deb Falcioni
 Marlene Ignacio
 Christine Lamka
 Michael Lamka
 Tom Phelps
 Roya Sabeti
 Larry Wiseman
 Vauhn Wittman-Grahler

Portland Community College

Ilga Ross

Spokane Community College

Robert Branch
 Susan Dimick
 Nichole Duvernay
 MaryLou Hammond
 Kristin Humphrey

Seattle Central Community College

Sanford Helt
 Joe Hull
 Bryan Johns
 Greg Langkamp
 Mike Pepe
 Tricia Perkins
 Janet Ray
 Bobby Righi
 Doug Solowan

Seattle University

Christine Black
 Russell Black
 Shusen Ding
 Mary Ehlers
 Wynne Guy
 Heather McGilvray
 Janet Mills
 Andre Yandl

Spokane Falls Community College

Jim Brady
 Penny Coffman
 Gary Glaze
 Kialynn Glubrecht
 Rudy Gunawan
 Jim Hallam
 Lars Neises
 Nick Nickoloff
 Beverly Vredevelt

Shoreline Community College

Steven Bogart
 Wendy Hurley
 Fred Kuczmarshi
 Fred Prydz

South Puget Sound Community College

Chris Dutton
 Richard Ganns
 Allen Jenkins
 Carlea McAvoy
 Ed Moats
 Teresa Moats
 Eunice Robb
 Jake Vhrich
 Cesar Villasana

South Seattle Community College

Tesfaye Terefe
 Larry Vittim-Jones
 Marjie Vittim-Jones
 Jian Zou

Skagit Valley College

Amy Edwards
 Abel Gage
 Zoe Grimshaw
 Greta Kocol
 Kathy Larson
 Deborah Nichol
 Joventina Schaffner

Tacoma Community College

Karen Clark
 Gregory Ferencko
 George Gage
 Rhoda Gage
 Valerie Morgan-Kirck
 Michael Paul
 Trung Tran
 Ed Zimmerman

University of Washington

Pat A verbeck
 Caspar Curjel

Washington State University

Duane Detemple
 Jeanette Martin
 Carolyn Smith
 Kimberly Vincent

Wenatchee Valley College

Kit Arbuckle
 Lee Barnhill
 Garrick Booth
 Tom Dietrich
 Anne Gardner
 Michael Lavinder
 Randy Peterson
 Angela Redmon
 Angela Russell
 Vivian Sarles
 Sharon Wiest

Walla Walla Community College

Joyce Huntington
Gary Owsley
Eric Schulz

Western Washington University

Daniel Graber
Betty Ann Reay
John Reay
Donna Rochon
Katie Stables
Andria Villines

Yakima Valley Community College

Mike Kenyon
George Lopez
Martin Meister
Beverly Pamell
Jimmie Parnell
Dan Schapiro

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Lee Barnhill
Aaron Bingham
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Russell Black
Steven Black
Pete Bloomsburg
Steven Bogart
Garrick Booth
Laura Bracken
Jim Brady
Robert Branch
Kent Brauningger
Susanne Bromley
Kelly Brooks
Donna Brown
Helen Burn
Sharon Camner
Paul Casillas
Mary Chu
Karen Clark
Calvin Clawson
Michael Coffey
Penny Coffman
Jacqueline Coomes
Jeff Crabill
Susan Cross
Cheryl Cunningham
Caspar Curjel
Kathy Curnutt

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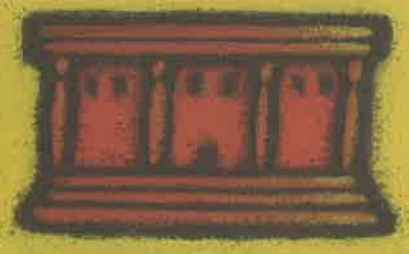
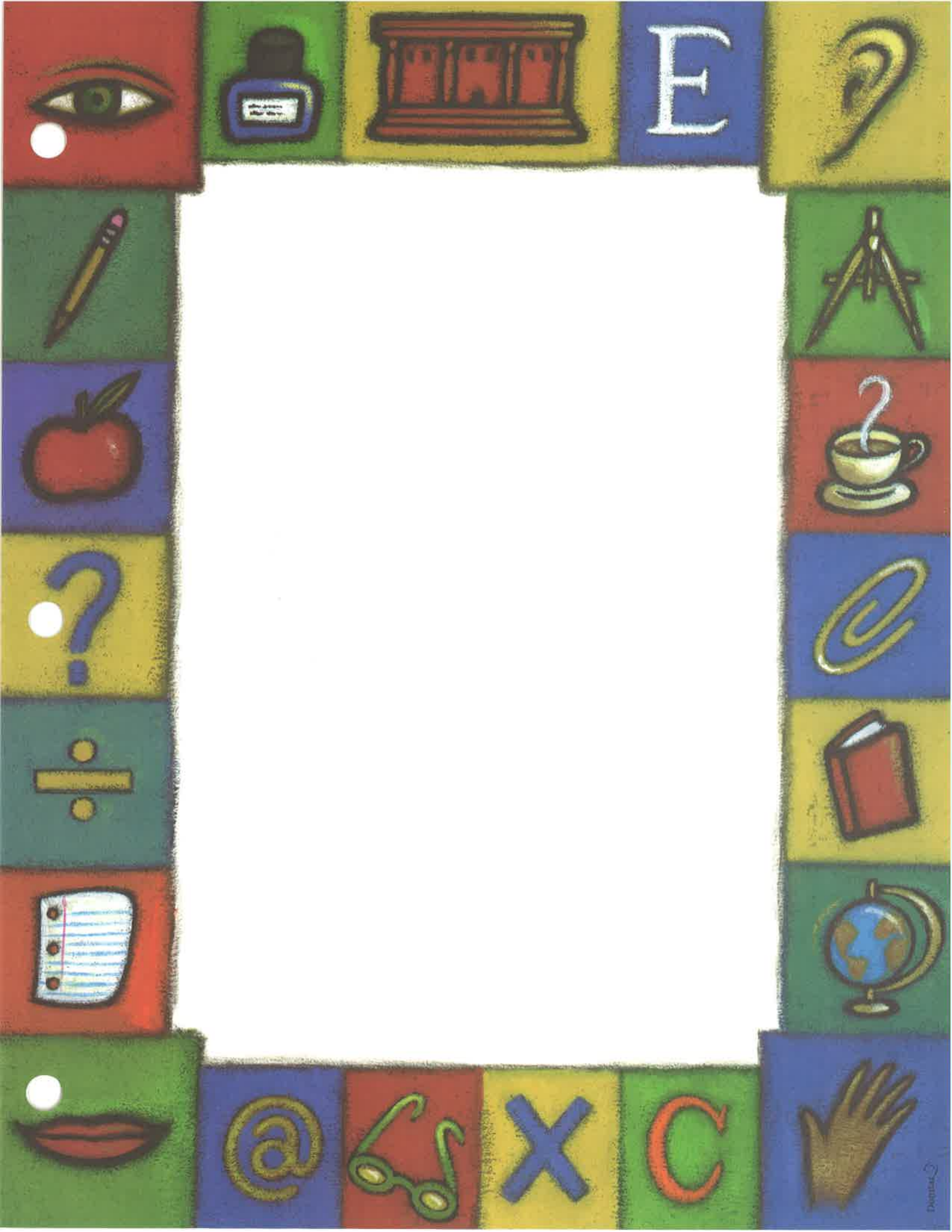
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NEWS

Washington Mathematical Association of
Two-Year Colleges

Join WAMATYC for only \$5 a year.*

Come to the WAMATYC annual meeting on

Saturday morning at 8:30 in the Red Delicious Room West.

Bring your breakfast and find out what WAMATYC is doing. Watch Emily Woods (Penninsula CC) become our new WAMATYC President as Dale Hoffman (Bellevue CC) completes his term. Everyone is welcome.

The **WAMATYC Birds-of-a-Feather** room (Red Delicious West) is a place to hang out and to connect with others to discuss various topics of common interest. A schedule of times and topics is in the program and will be posted by the door. Everyone is welcome.

The **WAMATYC Website** at

<http://www.csci.clark.edu/~gloves/WAMATYC/>

provides WAMATYC announcements, Math Retreat information, Student Math League NW results, links to officers, NW math departments and job announcements. Send your news and announcements to our webmaster Sally Keely at skeely@clark.edu.

It's not too early to think about the **AMATYC Teaching Excellence Award 2001**. The Teaching Excellence Award is given in odd-numbered years to an outstanding two-year college mathematics instructor **from each region**. Additional information will be available at the WAMATYC meeting on Saturday and at <http://www.amatyc.org>.

The **AMATYC Fall 2000 National Conference**, "Reaching New Heights," will be in Chicago, November 9-12. Information is available at <http://www.amatyc.org>.

Need additional information? Contact Sally Keely at skeely@clark.edu, Emily Woods at ewoods@ctc.edu, or Marjie Vittum-Jones at mvjones@sccd.ctc.edu.

* Payable at the Saturday morning WAMATYC meeting or to any WAMATYC officer during the Retreat 2K or contact Marjie Vittum-Jones.

2001

Start making plans now to attend the Washington/Oregon 2001 Spring Math Conference at beautiful Skamania Lodge in the Columbia River Gorge, hosted jointly by ORMATYC and Peninsula College. This joint conference provides a superb opportunity for networking with our colleagues to the south. It will be held Thursday, April 19 - Saturday, April 21. Cochairs for the event are Doug Nelson from Central Oregon Community College and Emily Woods from Peninsula College.

We plan to establish a conference web site, similar to the one for this year's conference, and conduct much of our communication with you via the web. So watch for its appearance some time next fall. We'll alert you by e-mail.

There is double the potential for a really great conference as a result of the combined effort by our two states. If your presentation went particularly well at our meeting this year, perhaps you'd consider repeating it when we meet together next year. Or maybe you'll have something new and exciting to tell us about. Think about it!

**2001 Spring Math Conference
Skamania Lodge
April 19 - April 21, 2001**

Comments or questions?

Doug Nelson at dnelson@cocc.edu

Emily Woods at emilyw@pcadmin.ctc.edu.

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A VERY BRIEF HISTORY OF THE
WASHINGTON COMMUNITY COLLEGE MATHEMATICS RETREAT

In the spring of 1969 the first Washington Community College Mathematics Retreat was organized by youngsters Phil Heft, Larry Larson, Jim Relf and John VanDruff. Thirty-three community college mathematicians registered. Each of them paid \$16.68 for meals and the right to pitch a sleeping bag on the floor of a barrack room at The Lodge at Ashford (near Mount Rainier) for one night.

Thirty years have passed. All of the original organizers have retired (but not disappeared or abandoned mathematics), but The Retreat has not missed a beat. The Retreat is an extremely informative, enjoyable, much-looked-forward-to conference -- something for a variety of mathematical and pedagogical palettes, relaxed and informal, not too expensive to attend (time or money), pleasant surroundings, and lots of good fellowship.

This year more than two hundred mathematicians from both two-year colleges and four-year colleges registered for Retreat 2000. The program features about forty presentations: four invited talks, the rest contributed by inspired volunteers. Responsibility for planning The Retreat is passed among the twenty-eight Washington community colleges. There's no particular formula for who hosts when; and there's no set location where Retreats are held. As if by magic, volunteers appear (usually a few years in advance) and "destination" meeting sites are found in the Cascade Mountain corridor, on the Olympic Peninsula or in the Columbia Gorge.

<u>YEAR</u>	<u>HOST</u>	<u>LOCATION</u>
2001	Peninsula C.C. & ORMATYC	Skamania
2000	Bellevue C.C.	Wenatchee
1999	Edmonds C.C.	Ocean Shores
1998	Tacoma/Big Bend C.C.'s	Chelan
1997	Green River C.C.	Chelan
1996	Spokane Falls C.C. & ORMATYC	Skamania
1995	Skagit Valley/Whatcom C.C.'s	Wenatchee
1994	South Seattle C.C.	Silverdale
1993	Highline C. C.	Wenatchee
1992	Yakima C. C.	Yakima
1991	Pierce College/Tacoma C.C.'s	Chelan
1990	Clark C.C.	Alderbrook
1989	Bellevue C.C.	Chelan
1988	Olympic C. C.	Port Ludlow
1987	Lower Columbia C.C.	Alderbrook
1986	North Seattle C.C.	Alderbrook
1985	Shoreline C.C.	Sun Mountain
1984	Green River C.C.	Alderbrook
1983	Olympic C.C.	Port Ludlow
1982	Highline C.C.	Chelan
1981	Spokane Falls C.C.	Sun Mountain
1980	Spokane Falls C.C.	Sun Mountain
1979	Olympic C.C.	Port Ludlow
1978	Edmonds C.C.	Providence Heights
1977	Shoreline C.C.	Providence Heights
1976	Bellevue C.C.	Snoqualmie Pass
1975	Highline C.C.	Providence Heights
1974	Shoreline C.C.	Lake Wilderness
1973	Seattle Central C.C.	Snoqualmie Pass
1972	Everett C.C.	Snoqualmie Pass
1971	Everett C.C.	Snoqualmie Pass
1970	Spokane Falls C.C.	TheLodge
1969	Green River/Highline/Ft. Steilacoom C.C.'s	TheLodge

Acknowledgements

To all of the following

Bellevue Community College Foundation

for sponsoring our invited speakers

Dwayne Coy and Jeff Ward of Brooks Cole/Thompson Learning

for sponsoring the Thursday evening social

Marilyn Jacoby of McGraw Hill

for sponsoring Friday evening's musical entertainment & providing prizes

David Shea of Addison-Wesley

for donating the book bags

Allan Gainer of DC Heath

for donating the Tolkien book prizes

Bill Davis of W.H. Freeman

for donating book prizes

Mary Jane Smith of Texas Instrument

for donating calculator prizes

Mathematical Association of America

for donating Fibonacci and Horizons t-shirt prizes

Stephen Reinhart TDLC.com

for donating ONLINE MATH student voucher prizes

AMATYC

for sponsoring the Birds of a Feather Room

Invited speakers Mark Nielsen, Ivars Peterson, Ken Ross & Brian Winkel

for making Retreat 2000 one to remember

..... and to all you brave.....

Contributed speakers

without whom this event could not happen year after year after year

Thank you!

WACC Mathematics Retreat 2000

Schedule Changes

- Due to a family emergency Duane DeTemple has had to withdraw his talk. Accordingly, the Friday morning schedule in Gala Rooms 1 & 2 has been revised, as shown below.

Friday Morning

<i>Time/Room</i>	<i>Gala 1 & 2</i>
10:00 - 10:50	<i>King's Tour in Hex Chess</i> Reay
11:00 - 11:25	<i>Patterns of Signs</i> Plagge
11:30 - 11:55	nothing scheduled

- The starting time for the banquet was printed incorrectly on the original schedule. Food service will begin promptly at 5:45.

Friday Evening

5:45 - 7:15 Banquet

Orchard Exhibit Hall South