2003 Washington State Community College
Mathematics Conference

Thursday

4:00 — 7:30	Registration	Red Lobby
7:30 — 8:15	Opening Speaker: Millie Johnson	Orchard Exhibit South
8:30 — 11:00	Hosted Social provided by Thomson Learning	Orchard Exhibit South

Friday

7:15 — 8:30	Breakfast Buffet	Orchard Exhibit South
7:30 —	Registration	Red Lobby
8:00 —	Exhibitor Displays Open	Fountain Lobby

Time/Room	RED DELICIOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
8:45 —9:45	Jackie Coomes and Angela Redmon Encouraging Students to Move Beyond Memorization	Linda Cave Viewing Probabilities on the TI-83	Eric Schulz Visual Linear Algebra	Deann Leoni Being a Math Mentor: Helping Integrate Mathematics Across the Curriculum

9:45 — 10:15	Hot Beverage Break and Snack	Fountain Lobby

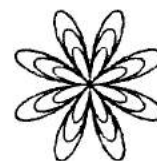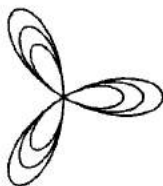| Time/Room	RED DELICIOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
10:15 —11:15	Gail Nord Geometric Constructions: Let's Have Fun with Some Geometric Theorems	Kirk Trigsted and Ann Abbott POLYA-An Adventure in Teaching Mathematics	Helen Burn Disciplinary Specialization: History, Theory, and Reflections	Lars Neises Some Historical Solutions to the Quadratic Equation without Completing the Square

11:30 — 1:00	Lunch	Orchard Exhibit South
12:15 — 1:00	Annual WAMATYC Meeting	Orchard Exhibit South

Time/Room	RED DELICIOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
1:15 —2:15	Rhoda Gage An Alternate Method for Placement for Recent High School Graduates	Tom Read Which Forces Cause Resonance?	Sharon M. Saxton Visual and Active Learning for Under Prepared Students	
2:30 —3:00	Sue Norris High School to College: Assessment or Betrayal	Penny Coffman My Favorite E-mail Stories and Jokes	Eric Schulz Math On The Web Using webMathematica	Margaret Anne Rogers Working Within a Regular Math Classroom to Assist Students with Learning Difficulties

3:00 — 3:30	Cold Beverage Break and Snack	Fountain Lobby

Time/Room	RED DELICIOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
3:30 —4:30	Jennifer Laveglia My Latest Experiments in Intro. Algebra Instruction	William Webber The Mathematics of Juggling	John Kellermeier Ethnomathematics	Branko Curgus Numbers in the Sky (Viewing) Sculpture

Friday Evening

6:15 — 6:45	No Host Social	Orchard Exhibit South
6:45 — 7:30	Banquet	Orchard Exhibit South
7:30 — 8:30	Keynote Speaker: Underwood Dudley	Orchard Exhibit South
8:30 — 10:30	DJ Music/Dance/Karaoke/No Host Social provided by Prentice Hall	Orchard Exhibit South

Saturday

7:30 — 9:00	Breakfast Buffet	Orchard Exhibit South
8:00 —	Exhibitor Displays Open	Fountain Lobby

Time/Room	RED DELICOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
9:15 —10:15	Grisha Stewart The D³ Method: Do, Discuss, Demonstrate	Kirk Trigsted and Ann Abbott POLYA-An Adventure in Teaching Mathematics	John Kellermeier Ethnomathematics	Joe Mailhot Teaching Non-Euclidean Geometry to Liberal Arts Students

10:15 — 10:30	Hot Beverage Break	Fountain Lobby

Time/Room	RED DELICOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
10:30 —11:30	Jackie Coomes and Angela Redmon Encouraging Students to Move Beyond Memorization	William Webber The Mathematics of Juggling	Helen Burn Disciplinary Specialization: History, Theory, and Reflections	Linda Cave Viewing Probabilities on the TI-83

11:30 — 12:00	Checkout, Box Lunch, and Departure	Orchard Exhibit South

THANK YOU FOR ATTENDING THIS YEAR'S CONFERENCE!!!

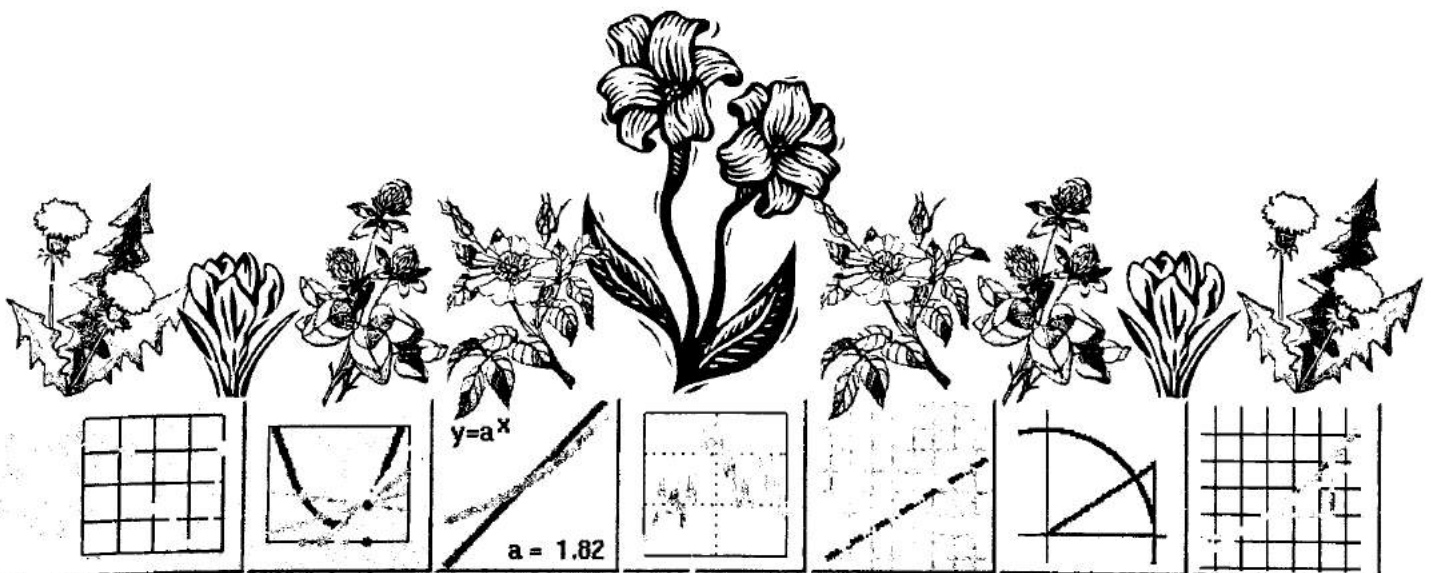Please check the conference website in a few weeks for photos from this conference.
http://ol.scc.spokane.edu/2003wsccmc/home.htm

Washington State Community College
Annual Math Conference

BLOSSOM

with
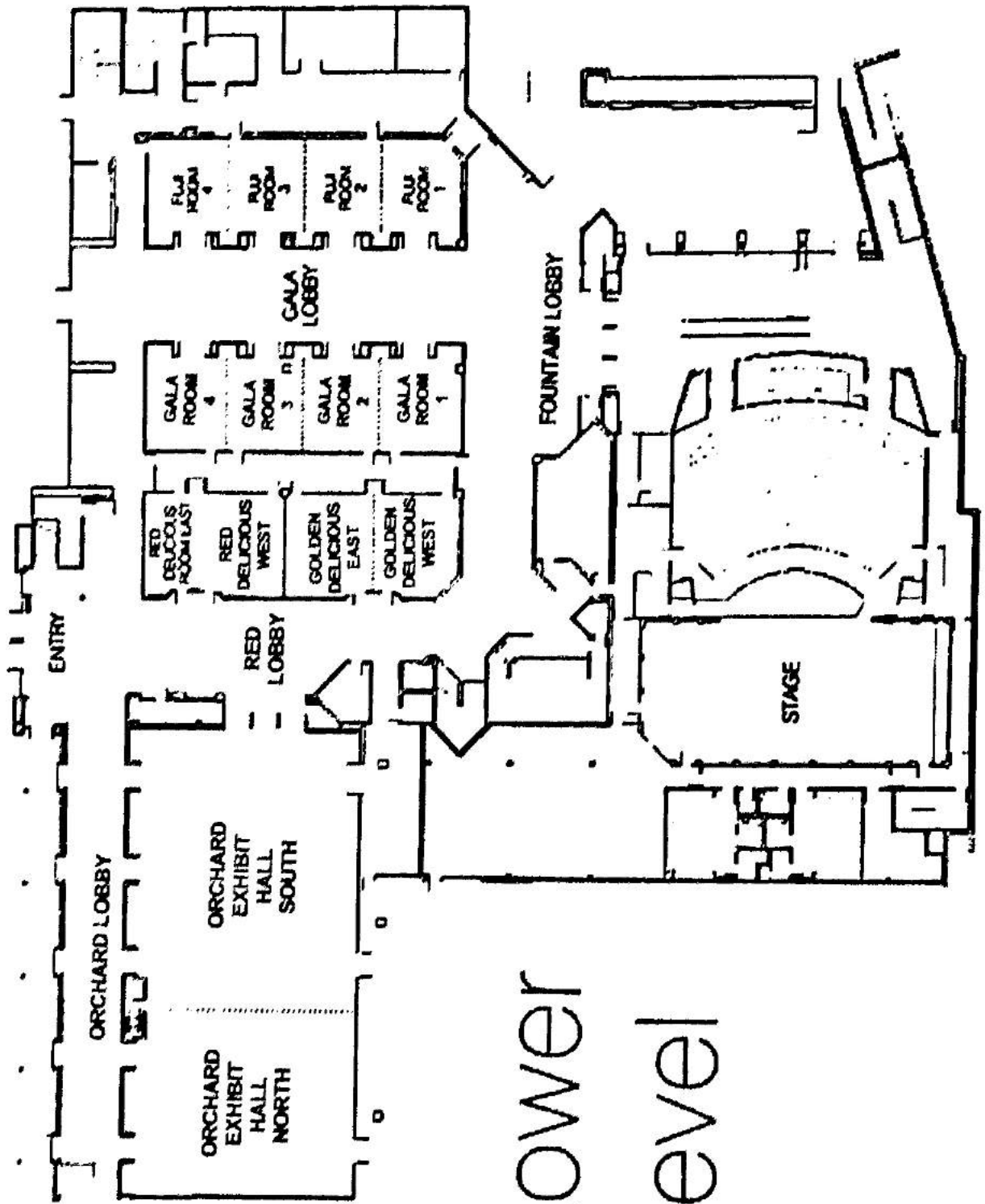
MATH

Wenatchee, Washington

May 1st-May 3rd
2003

Saturday, May 3rd, 2003

Time/Room	RED DELICIOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
9:15 — 10:15	Grisha Stewart The D³ Method: Do, Discuss, Demonstrate	Kirk Trigsted and Kris Abbott POLYA-An Adventure in Teaching Mathematics	John Kellermeier Ethnomathematics	Joe Malkevitch Teaching Non-Euclidean Geometry to Liberal Arts Students
10:15 — 10:30				
10:30 — 11:30	Jackie Coomes and Angela Redmon Encouraging Students to Move Beyond Memorization	William Webster The Mathematics of Juggling	Helen Burn Disciplinary Specialization: History, Theory, and Reflections	Linda Cave Viewing Probabilities on the TI-83

Spring Conference Presenters Schedule
Friday, May 2nd, 2003

Time/Room	RED DELICIOUS WEST	GALA ROOMS 1 AND 2	GALA ROOMS 3 AND 4	GOLDEN DELICIOUS EAST
8:45 —9:45	Jackie Coomes and Angela Redmon — Encouraging Students to Move Beyond Memorization	Linda Cave — Viewing Probabilities on the TI-83	Eric Schulz — Visual Linear Algebra	Deann Leoni — Being a Math Mentor: Helping Integrate Mathematics Across the Curriculum
9:45 —10:15				
10:15 —11:15	Gail Nord — Geometric Constructions: Let's Have Fun with Some Geometric Theorems	Kirk Trigsted and Ann Abbott — POLYA-An Adventure in Teaching Mathematics	Helen Burn — Disciplinary Specialization: History, Theory, and Reflections	Lars Neises — Some Historical Solutions to the Quadratic Equation without Completing the Square
11:30 —1:00				
1:15 —2:15	Rhoda Gage — An Alternate Method for Placement for Recent High School Graduates	Tom Read — Which Forces Cause Resonance?	Sharon M. Saxton — Visual and Active Learning for Under-prepared Students	
2:30 —3:00	Sue Norris — High School to College: Assessment or Betrayal	Penny Coffman — My Favorite E-mail Stories and Jokes	Eric Schulz — Math On The Web Using webMathematica	Margaret Anne Rogers — Working Within a Regular Math Classroom to Assist Students with Learning Difficulties
3:00 —3:30				
3:30 —4:30	Jennifer Laveglia — My Latest Experiments in Intro. Algebra Instruction	William Webber — The Mathematics of Juggling	John Kellermeier — Ethnomathematics	Branko Curgus — Numbers in the Sky (Viewing) Sculpture

Lower Level

ORCHARD LOBBY

ORCHARD EXHIBIT HALL NORTH

ORCHARD EXHIBIT HALL SOUTH

ENTRY

RED LOBBY

RED DELICIOUS ROOM EAST

RED DELICIOUS WEST

GOLDEN DELICIOUS EAST

GOLDEN DELICIOUS WEST

GALA ROOM 4

GALA ROOM 3

GALA ROOM 2

GALA ROOM 1

GALA LOBBY

FUJI ROOM 4

FUJI ROOM 3

FUJI ROOM 2

FUJI ROOM 1

FOUNTAIN LOBBY

STAGE

INVITED SPEAKERS

Millie Johnson
Associate Professor of Mathematics
Western Washington University
millie@cc.wwu.edu

will present

Why Do Dogs Have Wet Noses and Other Mathematical Insights into Animal Physiology: Breathing, Swimming, Flying.......

Thursday Evening, 7:30-8:15 PM
Orchard Exhibit South

Everyone knows a good heart and lungs are important to their health,
but how many know the value of "good" nasal geometry? Which form of animal
locomotion is the most economical: running, swimming or flying? Examining the
mechanics of body parts yields insight into a general scaling model that connects size
with metabolism.

$(a + b)^2 = a^2 + 2ab + b^2$

$A = \pi r^2$
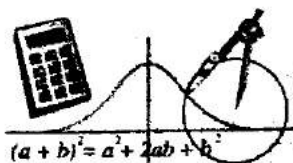
Underwood Dudley
Professor of Mathematics
DePauw University
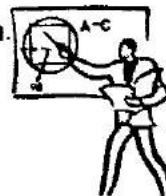*dudley@depauw.edu*
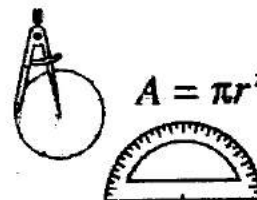
will present

Why Teach Mathematics?

Friday Evening, 7:30-8:30 PM
Orchard Exhibit South

Why do we teach algebra, geometry and calculus to millions of students
each year? I will present six reasons, five of which are wrong
(though some are widely held), and conclude with the right reason.
Not everyone, I have found, agrees with my convictions.

● *Encouraging Students to Move Beyond Memorization*

Jackie Coomes, Eastern Washington University,   Red Delicious <u>WEST</u>
Angela Redmon, Wenatchee Valley College

This presentation will discuss developing questions as a way to help students understand concepts from multiple perspectives and give up ideas of mathematics as procedures to memorize. Examples of questions from developmental mathematics through calculus will be presented.

Viewing Probabilities on the TI-83

Linda Cave, Western Washington University   Gala Rooms <u>1 & 2</u>

Prior to studying formal statistical techniques, beginning statistics students can use graphing calculators to informally find probabilities to help build a conceptual understanding of probabilities associated with random variables. In this session, we will estimate probabilities for random variables by creating visual displays. Bring your TI-83 or TI-89!!!

● *Visual Linear Algebra*

Eric Schulz, Walla Walla Community College   Gala Rooms <u>3 & 4</u>

In our approach to linear algebra, the course materials help students develop visualization skills that enable them to acquire strong geometric intuition about the fundamental concepts. Moreover, this learning takes place in a dynamic, computing-intensive environment in which students are actively engaged in constructing their understanding of linear algebra. We have developed a complete set of materials for an introductory course in linear algebra that emphasizes geometry and visualization. Our materials are organized into eight chapters with a total of forty-four sections. About two-thirds of the sections are computer tutorials and the rest are written in a traditional textbook style. In our presentation we will focus on the computer tutorials and especially on the geometric aspects of these sections. Our computer tutorials are available in *Maple*, *Mathematica*, and *webMathematica*.

Being a Math Mentor: Helping Integrate Mathematics Across the Curriculum

Deann Leoni, Edmonds Community College   Golden Delicious <u>EAST</u>

For the past four years, the Mathematics Across the Curriculum (MAC) project has helped faculty integrate mathematics into other disciplines. The presenters include four math faculty who have assisted non-math faculty in creating such curricula. They will share information about their projects and how the project has impacted their own teaching.

Geometric Constructions: Let's Have Fun with Some Geometric Theorems

Gail Nord, Gonzaga University   Red Delicious <u>WEST</u>

We will explore the mathematics behind geometric constructions. The presentation will include examples that will be fun for use in the math for elementary teachers and geometry classrooms.

POLYA- An Adventure in Teaching Mathematics Using Technology at the University of Idaho

Kirk Trigsted, University of Idaho   Gala Rooms <u>1 & 2</u>
Ann Abbott, University of Idaho

The Polya Mathematics Learning Center provides individualized instruction by utilizing a variety of technology assisted learning options. Students attend a one hour Focus group session each week. Three to four hours per week must be spent in the center where students choose the learning instruction suitable to their individual needs. The program evaluation is an ongoing process combining both formative and summative evaluation.

Disciplinary Specialization: History, Theory, and Reflections

Helen Burn, Highline Community College   Gala Rooms <u>3 & 4</u>

This presentation will chronicle the rise of disciplinary specialization and the research university, focusing particularly on the discipline of mathematics and mathematics education. Research will be presented on the effects of disciplinary specialization and the difference between faculty in mathematics, in education, and in mathematics education.

Some Historical Solutions to the Quadratic Equation without Completing the Square

Lars Neises, Spokane Falls Community College   Golden Delicious <u>EAST</u>

Although Hindu-Arabic numerals and algebraic notation were unavailable to them, ancient Babylonian mathematicians (c., 2000 BCE) were able to solve some quadratic equations using clay tablets with tables of values in cuneiform script. The ancient Greeks, Hindus, Arabs, and Renaissance Europeans developed techniques of their own as well. None of these methods for solution require 'completing the square.'

An Alternate Method for Placement of Recent High School Graduates

Rhoda Gage, Tacoma Community College,   Red Delicious <u>WEST</u>

Rhoda will describe a multiple measures placement method she developed for use at Tacoma Community College. The alternative placement charts are used for students who graduated from area high schools within the last year before placement. Students qualifying for this method still take the assessment test, but then can choose to use the higher of the two placements if they wish. This method has been in use at TCC for about a year, so success measures are still very preliminary. Rhoda's presentation will last about 1/2 hour. The remaining time will be open for an optional discussion of placement issues.

Which Forces Cause Resonance?

Tom Read, Western Washington University   Gala Rooms <u>1 & 2</u>

The second order equation $y'' + y = \cos \omega t$ has one solution $a \cos \omega t$ and all solutions are bounded functions of t unless $\omega = 1$. Then all solutions of $y'' + y = \cos t$ are unbounded. This is **resonance**. Does resonance occur whenever the forcing term has the same period as solutions to the homogeneous equation? If not, which periodic functions cause resonance and which do not? The answer to this question is surprisingly elementary and has a very slick linear algebra interpretation. This talk will be understandable by anyone who remembers a bit about second order differential equations and about orthogonal projections.

Visual and Active Learning for Under-prepared Students: A Math/English Learning Community

Sharon Saxton, Cascadia Community College   Gala Rooms <u>3 & 4</u>

Combining English and Math! Come hear about a learning community that utilized visual learning and active learning techniques as an approach to teaching an integrated Math/English curriculum targeted at under-prepared students. During this discussion you will be invited to share your own ideas and experiences.

High School to College: Assessment or Betrayal

Sue Norris, Peninsula Community College,   Red Delicious <u>WEST</u>

This presentation is a roundtable discussion of efforts toward a seamless progression from high school to college. Discussion material include WASL, Compass, Asset, Accuplacer, intermediate algebra prerequisites, and state efforts on quantitative reasoning. Your voice as an expert needs to be heard! Synthesis of the discussion will be sent to SBCTC, and Education Reform Committee of HEBC.

My Favorite E-mail Stories and Jokes

Penny Coffman, Spokane Falls C. C.   Gala Rooms <u>1 & 2</u>

For those of you who want a break from the serious side of life, Penny will have a collection of her favorite e-mails that she has gathered over the last couple of years. Bring your sense of humor.

Math on the Web Using webMathematica

Eric Schulz, Walla Walla Community College   Gala Rooms <u>3 & 4</u>

Presentation of a wide range of webMathematica enabled web pages that support topics ranging from algebra, calculus, finite mathematics, linear algebra, differential equations, and statistics. Also included will be a brief overview of the underlying technologies used by webMathematica, what is required to support and run a webMathematica site, and what is involved in writing webMathematica enabled web pages.

Some Suggestions for Working within a Regular Math Classroom Setting to Assist Students with Learning Difficulties

Margaret Anne Rogers, Shoreline C. C.   Golden Delicious <u>EAST</u>

Approximately 15% of students in any class are likely to have some form of learning difficulty, such as dyslexia or attention deficit/hyperactive disorder. This presentation will suggest ways a math instructor can assist these students without compromising the education of the other students.

My Latest Experiments in Introductory Algebra Instruction: The What, Why, and "Was-It-All-Worth-It" of Skill Mastery and Portfolios

Jennifer Laveglia, Bellevue Community College,   Red Delicious <u>WEST</u>

A particularly unsatisfying classroom experience motivated a major change in the structure of the presenter's introductory algebra courses. Inspired by a presentation at last year's math conference in Yakima, Jennifer implemented skill quizzes and portfolios in her Math 097 and 098 courses this year. The presentation details the skill quizzes and portfolios as they function in her classes and includes reflections on their effectiveness.

The Mathematics of Juggling   Gala Rooms 1 & 2

William T. Webber, Whatcom Community College

Juggling involves every level of mathematics taught at the community college, from basic number patterns and arithmetic to piecewise functions and matrix multiplication. Using knowledge of both juggling and mathematics, the presenter has created on-line virtual jugglers. The presentation will use live and virtual juggling to demonstrate the mathematical aspects of juggling. Those attending this session should know some math, but juggling ability is not required.

Ethnomathematics

John Kellermeier, Tacoma Community College   Gala Rooms 3 & 4

An ethnomathematical viewpoint sees mathematics as arising in response to problems, struggles, and endeavors of human survival, including not only material needs and concerns but also such endeavors as art and spirituality. This presentation will tell some ethnomathematical stories, giving examples of ethnomathematics from various cultures.

Numbers in the Sky(Viewing) Sculpture

Branko Curgus, Western Washington University   Golden Delicious <u>EAST</u>

Branko will present some mathematical aspects of the Skyviewing Sculpture, which is the landmark of the Western Washington University campus.

The D^3 Method: Do, Discuss, Demonstrate

Grisha Stewart, Seattle University   Red Delicious <u>WEST</u>

Not all students are motivated by grades or learn from written feedback. In this workshop, instructors will learn about the details of D^3, a method for engaging students in their own learning via group interaction. Time permitting, we will all brainstorm to find ways to improve the method or use it in different settings.

An Encore Presentation of *POLYA- An Adventure in Teaching Mathematics Using Technology at the University of Idaho*

Kirk Trigsted, University of Idaho   Gala Rooms <u>1 & 2</u>
Ann Abbott, University of Idaho

An Encore Presentation of *Ethnomathematics*

John Kellermeier, Tacoma Community College   Gala Rooms <u>3 & 4</u>

Teaching Non-Euclidean Geometry to Liberal Arts Students

Joe Mailhot, St. Martin's College   Golden Delicious <u>EAST</u>

I'm running a Math and Modern Culture course for our general education requirement at St. Martin's. In the course I have students keep a journal, create art, read Flatland, and work with Euclid, Lobachevski, and Cantor. This allows the students to work towards an understanding of mathematics as something more than intermediate algebra.

Saturday Morning, 10:30- 11:30

● An Encore Presentation of *Encouraging Students to Move Beyond Memorization*

Jackie Coomes, Eastern Washington University,
Angela Redmon, Wenatchee Valley College

Red Delicious <u>WEST</u>

An Encore Presentation of *The Mathematics of Juggling*

William T. Webber, Whatcom Community College

Gala Rooms <u>1 & 2</u>

An Encore Presentation of *Disciplinary Specialization: History, Theory, and Reflections*

Helen Burn, Highline Community College

Gala Rooms <u>3 & 4</u>

● An Encore Presentation of *Viewing Probabilities on the TI-83*

Linda Cave, Western Washington University

Golden Delicious <u>EAST</u>

Washington State Community College
Math Conference 2003
wishes to acknowledge and thank

Our Featured Speakers

Underwood Dudley and Millie Johnson

Prentice Hall	**Thomson Learning**
and	and
Scott Peterson	Josh Fletcher
Julie Burgmeier	Dwayne Coy
Steve Foster	Libby Blaker
Megan Donneley	*for sponsoring*
for sponsoring Friday evening's	*the Thursday evening social*
musical entertainment	

Addison Wesley	**Houghton Mifflin**
and	and
Teri Orr	Alan Gainer
for providing	*for donating*
conference tote bags	*Tolkien book prizes*

Texas Instruments
and
Karola Brookshire
for donating a
TI-83+ Silver Edition Calculator

Circuit City Stores, Inc	**Costco Wholesale**
Spokane, North Division Store	Spokane Valley Store
Pentax Camera	*$25 merchandise card*

Office Depot	**Office Depot**
Spokane, North Division Store	Coeur d' Alene Store
Pierre Cardin Pen Set	*10% Discount card*
Affinity Pen Set	

Hastings
Coeur d' Alene Store
Five $10 merchandise cards

Kamilia Nemri	**All presenters**
for donating	*without whom*
the mathematical ties	*this event could not happen*

Washington State Community Colleges Mathematics Conference

The first Washington Community College Mathematics Retreat was held in 1969. The organizers were 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. The menus for the first banquet as well as the name of the first "guest speaker" remain unsolved mysteries!

Today's Retreats, usually referred to as Spring Math Conferences, involve more than two hundred mathematicians from both two-year and four-year colleges. There are usually a few invited talks, but the bulk of the program is contributed by inspired volunteers. Responsibility for conference planning is passed among the thirty-four Washington community colleges. There's no particular formula for who hosts when; and there's no set location where the meetings 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. There is a traveling fund, the Washington State Math Conference Foundation, that helps the host institution with start-up costs.

YEAR	HOST	LOCATION
2006	(Picture yourself here!)	??????
2005	(Picture yourself here!) HIGHLINE	?????? OCEAN SHORES
2004	Pierce	Yakima
2003	**Spokane & North Idaho**	**Wenatchee**
2002	Clark	Yakima
2001	Peninsula College & ORMATYC	Skamania
2000	Bellevue CC	Wenatchee
1999	Edmonds CC	Ocean Shores
1998	Tacoma/Big Bend CC's	Chelan
1997	Green River CC	Chelan
1996	Spokane Falls CC & ORMATYC	Skamania
1995	Skagit Valley/Whatcom CC's	Wenatchee
1994	South Seattle CC	Silverdale
1993	Highline CC	Wenatchee
1992	Yakima CC	Yakima
1991	Pierce College/Tacoma CC	Chelan
1990	Clark CC	Alderbrook
1989	Bellevue CC	Chelan
1988	Olympic CC	Port Ludlow
1987	Lower Columbia CC	Alderbrook
1986	North Seattle CC	Alderbrook
1985	Shoreline CC	Sun Mountain
1984	Green River CC	Alderbrook
1983	Olympic CC	Port Ludlow
1982	Highline CC	Chelan
1981	Spokane Falls CC	Sun Mountain
1980	Spokane Falls CC	Sun Mountain
1979	Olympic CC	Port Ludlow
1978	Edmonds CC	Providence Heights
1977	Shoreline CC	Providence Heights
1976	Bellevue CC	Snoqualmie Pass
1975	Highline CC	Providence Heights
1974	Green River CC	Lake Wilderness
1973	Seattle Central CC	Snoqualmie Pass
1972	Everett CC	Snoqualmie Pass
1971	Everett CC	Snoqualmie Pass
1970	Spokane Falls CC	The Lodge
1969	Green River/Highline/Ft. Steilacoom CC's	The Lodge

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Washington Mathematical Association of Two-Year Colleges

The Washington Mathematical Association of Two-Year Colleges (WAMATYC) was formed in Yakima in 1986 and is affiliated with the American Mathematical Association of Two-Year Colleges. Membership is $5.00 per year.

WAMATYC meetings are held during the Washington Community College Mathematics Conference in the spring of each year. Each year, the organization awards $50 to the Washington College that places highest in the AMATYC Student Mathematics League Contest.

WAMATYC has a web site created by Sally Keely of Clark College. The site has links to many useful sites as well as a current job announcement board and a distribution list for one-click emailing to WAMATYC. The site is currently being revised. A feature coming soon is a math directory online organized by Marjie Vittum-Jones. This directory will list the faculty, courses taught, and textbooks used at each community college in the state.

WAMATYC provides the national organization, AMATYC, with news and member opinions related to mathematics instruction in Washington State. WAMATYC would like to expand its role by increasing the awareness of both the Washington Public and members of the Washington State legislature about mathematics and math education in the State. Many exciting things are happening in Washington Community College math classrooms, and people should know about them!

The past and current presidents are Barbara Poole (1986-88), Chuck Ainsley (1988-90), Phil Heft (1990-92), Mike Greenwood (1992-94), Paul Casillas (1994-1998, Dale Hoffman (1998-2000), Emily Woods (2000-2002), Doug Mooers (2002-2004), Mike Kenyon (2004-2006).

New members may sign-up and current members may renew their membership at the WAMATYC table in the conference registration area.