



October 14, 2009

Dear Conference Participant,

The Alaska Science Teachers Association (ASTA) and the Alaska Council of Teachers of Mathematics (ACTM) would like to welcome you to the 6th Alaska Statewide Math and Science Conference in Juneau, Alaska. This year the Juneau School District, ASTA, ACTM and a host of contributors have partnered to make this an exciting first time event in Southeast Alaska.

We are enthusiastic about the varied opportunities and offerings available to you during this conference. Each day is filled with nationally recognized keynote and guest speakers, engaging break-out sessions, opportunities to network with educators from across the state and outside of Alaska, and time set aside to attend the Alaska State Museum's permanent exhibit, Science on a Sphere. We will kick-off the conference Wednesday evening with a public lecture from noted astronomer Dr. Stephen Maran, titled 'Galileo to Hubble and Beyond' followed by a dessert reception. University credit, field trips and fabulous lunches are also available for an additional fee.

We hope you find your days in Juneau educationally and professionally stimulating and that you take time to enjoy the verdant landscape of Southeast Alaska.

Now is the time: Build a Bridge to Student Understanding through Inquiry!

Linda Frame
Science Co-Chair

Bev Smith
Math Co-Chair

General Information



Conference Headquarters

Look for the conference headquarters near the registration area. Assistance with registration, technical needs, and other administrative conference issues will be provided by the registration staff.

Wednesday, October 14	Baranof Hotel
Thursday, October 15	JDHS Commons
Friday, October 16	JDHS Commons
Saturday, October 17	JDHS Commons

Registration

Register and pick up your conference materials.

Wednesday, October 14	4:00pm - 6:30pm	
	9:00pm - 11:00pm	Baranof Hotel
Thursday, October 15	7:30am - 4:30pm	JDHS Commons
Friday, October 16	7:30am - 12:00pm	JDHS Commons

Transportation

Shuttle buses will run between the Baranof Hotel and JDHS. Check the sign located in the hotel lobby for the daily bus schedule. Pick up and drop off at JDHS will be on Glacier Avenue, in front of the school.

Shuttle buses will run between JDHS and the Alaska State Museum between conference sessions. Shuttle buses have been arranged through the generous support of BP Alaska.

Badges

Your conference name badge will serve as your admittance to all conference sessions.

Cell phones

Please turn off all cell phones during keynote addresses and sessions.

Message Board

A message board will be in the JDHS Commons. Participants may leave messages for their colleagues. Please check this board frequently.

Exhibits

Come see the latest educational products and services that are available.

Thursday, October 15	8:00am - 5:00pm	JDHS Commons
Friday, October 16	8:00am - 5:00pm	JDHS Commons
Saturday, October 17	9:00am - 12:00pm	JDHS Commons

University Credit

Credit will be available to participants through the University of Alaska Southeast. There will be a one-credit option and a 3-credit option. You must be registered for the conference, and participate all three days, in order to register for the course. The cost is \$90 for either course, made payable to UAS, with an additional \$20 fee to go to the instructor of the 3-credit course. Details regarding course requirements will be available at the UAS registration table in the JDHS Commons on Thursday, October 15.

Evaluation

At the end of each day of the conference, we will be asking for your feedback. Please complete the conference evaluation forms found in your booklet to help us make the next conference even better! Thank you.



Conference Overview

Wednesday, October 14

Registration	4:00pm - 6:30pm	
	9:00pm - 11:00pm	Baranof Hotel
Welcome & Keynote (public event)	7:00pm - 8:30pm	JDHS Auditorium
Dessert Reception (everyone welcome)	8:45pm - 11:00pm	Treadwell Room, Baranof Hotel
<i>Hosted by UAS</i>		

Thursday, October 15

PAEMST Breakfast (invitation only)	7:00am - 8:00am	Gold Room, Baranof Hotel
<i>Hosted by Pearson Publishing</i>		
Registration	7:30am - 4:30pm	JDHS Commons
Exhibits	8:00am - 5:00pm	JDHS Commons
Opening Session	8:30am - 10:00am	JDHS Auditorium
Breakout Sessions	10:15am - 4:20pm	JDHS
Lunch (available for purchase)	11:45am - 1:00pm	JDHS Commons
Reception (tickets at booth)	5:00pm - 6:30pm	Treadwell Room, Baranof Hotel
<i>Hosted by Delta Education – FOSS</i>		

Friday, October 16

ACTM Breakfast (members only)	7:00am - 8:00am	Gold Room, Baranof Hotel
ASTA Breakfast (members only)	7:00am - 8:00am	Treadwell Room, Baranof Hotel
Registration	7:30am - 4:30pm	JDHS Commons
Exhibits	8:00am - 5:00pm	JDHS Commons
Opening Session	8:30am - 10:00am	JDHS Auditorium
Breakout Sessions	10:15am - 4:20pm	JDHS
Lunch (available for purchase)	11:45am - 1:00pm	JDHS Commons
Evening at Egan (public event)	7:00pm	UAS Egan Library

Saturday, October 17

Field Trip Experiences	9:00am - 1:00pm	meet at JDHS
Extended Sessions	9:00am - 12:00pm	JDHS

Rock & Roll Around Alaska

with AMEREF

The Alaska Mineral and Energy Resource Education Fund (AMEREF) invites you to participate in a one-credit class designed to give you the tools to teach your students about Alaska's natural resources with fun, interactive curriculum and activities. The cost is \$90 for UAS credit.

During this course you will receive

- One Ed 593 credit from UAS
- Alaska standards based curriculum with fun, hands-on activities for grades K-8 (adaptable for higher grades)
- Meals and beverages
- A FREE AMEREF resources kit that includes:
 - a set of 40 rocks and minerals
 - DVD's and CD's
 - posters and books for the classroom
 - rock testing kit & magnifying loupe, and much, much more!

Friday, October 16 4:30 pm – 8:30 pm

Saturday, October 17 7:00 am – 5:00 pm

JDHS Room 202



You are invited to a . . .

MATH READ ALOUD



The Juneau Haines Reading Council

is sponsoring a luncheon on

Thursday, October 15, at noon

in the JDHS Library featuring Math Read Alouds.

Come Join us!

Become a member or renew your membership while learning about literature that can be integrated into your math program.

Pizza and Prizes!

Don't miss these

Two Special Sessions

Friday, October 16 in the JDHS Library

A Discussion Forum

10:15 – 11:45

College Readiness and Curriculum Alignment in Mathematics, from K-12 to college

The goals of this discussion forum are:

- To increase awareness of the issue of college readiness in math in Alaska and nationally
- To provide information about college readiness efforts in Alaska and nationally
- To recognize that college readiness is a shared concern and responsibility
- To initiate a dialogue among math educators on strategies for accomplishing a K-12 and postsecondary alignment to address college readiness

The facilitator of the discussion forum is Dr. James Choike, math professor at Oklahoma State University and frequent workshop presenter in Alaska. Other participants are Dr. Dana Thomas, vice-provost at University of Alaska, Fairbanks, and former math department chair, and Bob Williams, math teacher at Colony High School and the 2009 Alaska Teacher of the Year.

Your ideas are welcome! Come share in the dialogue!



A Panel Discussion

1:00 – 2:30

Alaska's Workforce Demand and Careers for Math and Science Students

- statewide career opportunities now and in the future
- math and science courses necessary to prepare students for these opportunities
- internships for students
- externships for teachers

Panel participants include:

Todd Bergman	Executive Director	Alaska Process Industry Careers Consortium
Michele Brunner	Executive Director	Alaska Mineral and Energy Resource Education Fund
Meg Day	Human Resources Director	Kensington Gold Mine Coeur Alaska
Michelle Zenger	Senior Human Resources Director	Hecla Greens Creek Mining Company
Mary Rodman-Lopez	Apprenticeship Liaison	Alaska Dept. of Labor and Workforce Development
Emma Walton	Consultant	Emma Walton and Associates
Grant Baker	Engineering Instructor	University of Alaska Anchorage



2009 Alaska Math Science Conference

Wine and Cheese Reception



Westmark Baranof

Treadwell Room

Thursday, October 15

5:00-6:30 pm

Please visit Delta Education's booth to receive an invitation



Delta Education is the proud sponsor of this event



AEYC

-Association for the Education of Young Children -SE Alaska

All early childhood educators are invited to a special AEYC Reception, with **Constance Kamii** during the Alaska Math Science Conference Thursday, October 15th, 6 – 7:30pm, at the AEYC Office, 3100 Channel Dr.

Come for refreshments and networking, with or without conference registration. Constance Kamii will present an interactive session on: "Card Games That Foster Young Children's Logico-Mathematical Thinking." This is a complimentary session sponsored by the AEYC Board of Directors. For more information or a ride, call 789-1235.

Constance Kamii

- Professor of Early Childhood Education at University of Alabama at Birmingham.
- Widely known for her insights on constructivism through study under Jean Piaget in Geneva and work with teachers to develop practical ways of using his theory in classrooms
- Author of many books including *Physical Knowledge in Preschool Education* and *Young Children Reinvent Arithmetic*



Questions or comments? Please email us at info@aeyc-sea.org or call 789-1235.

Wednesday, October 14

JDHS Auditorium

7:00 pm

Welcoming Remarks
Bruce Botelho, Mayor of Juneau

Keynote Address

Dr. Stephen P. Maran

American Astronomical Society
Washington, DC

Galileo to Hubble
and Beyond

To celebrate the current International Year of Astronomy, Dr. Maran will contrast Galileo's famous discoveries (circa 1609) with current knowledge on the same subjects and the state of the art in space exploration in 2009. The topics discussed range from the most powerful telescopes of both eras (and the near future) to the bizarre environment of Venus, so-called flying-saucer moons, and Hubble Space Telescope's view of the distant universe. Galileo's revolutionary findings of the early 17th century compare well with the paradigm-shattering discoveries of the far-better-equipped 21st century astronomers.

Dr. Stephen P. Maran is an astronomer and author with long experience in the Space Program. His twelve books include *Astronomy for Dummies*[®], and his newest book *Galileo's New Universe: The Revolution in Our Understanding of the Cosmos*. He spent more than 35 years at NASA, working on the Hubble Space Telescope and other projects, and retired in 2004 as Assistant Director of Space Sciences for Information and Outreach at Goddard Space Flight Center. *The Dallas Morning News* says that "Dr. Maran takes up where Carl

Sagan left off, telling the story of space to anybody who's interested. Except that Dr. Maran is funnier."

Sponsored by the UAF Space Grant Program,
<http://spacegrant.alaska.edu/>

Additional Sessions with Dr. Maran

Space in Your Future: the New (2009) and Upcoming (2010) Science Missions in Earth Orbit & Beyond
Thursday, October 15, at 10:15am and again at 11:05am. Room: Auditorium

Dessert Reception

Following Dr. Maran's address, conference participants are invited to a dessert reception in the Treadwell Room of the Baranof Hotel, hosted by the University of Alaska Southeast,
<http://www.uas.alaska.edu>.



Invited Guests



James Choike

Noble Foundation Professor of Mathematics at Oklahoma State University

James Choike has received regional and national recognition for his mathematics teaching, his activities in curriculum development in mathematics grades 6-16, and his activities in distance learning. He has numerous publications in mathematical research and in mathematics curriculum grades 6-16. He is currently the Principal Investigator of a College Board project, funded by the NSF, called the Video-Supported Calculus Professional Development Project. *Sessions: Thurs. 10:15-11:45, 1:00-2:30; Fri. 1:00-2:30*

Jim Choike's attendance is sponsored by UAA.



Craig Gabler

NSTA Director of District XVII

Craig Gabler is employed as Regional Science Coordinator and LASER Alliance Director at Educational Service District 113 in Olympia, WA. Craig has 25 years of experience as a high school chemistry and physics teacher, and has served as Curriculum Director for Math & Science. *Sessions:*

Fri. 1:50-2:35, 2:45-3:30

Craig Gabler's attendance is sponsored by NSTA and ASTA.



Brian Hawkins

Aerospace Education Specialist

Currently with the Ames Research Center, Brian Hawkins is responsible for conducting workshops for teachers and administrators in schools, colleges and universities and lecture demonstration programs for students in schools within a ten state region. He was an instructor in the Anchorage School

District and at UAA. *Sessions: Thurs. 10:15-11:00; Fri. 3:35 - 4:20*

Brian Hawkins' attendance is sponsored by NASA.

Murrel Hoover



Mathematics Professional Development Associate, Teachers Development Group

Murrel Hoover has teaching and administrative experience at all educational levels. She has received numerous awards for her math teaching and is currently a member of the Advisory Board for the K-12 Mathematics Curriculum Center; and a member of the Professional Development Services

Committee Task Force for NCTM. *Sessions: Thurs. 1:00-2:30; Fri. 1:00-1:45*

Murrel Hoover's attendance is sponsored by NCTM and ACTM.



Constance Kamii

Professor of Early Childhood Education at the University of Alabama at Birmingham

Constance Kamii studied under Jean Piaget as a postdoctoral research fellow and later as an adjunct professor at the University of Geneva. During the same period, she also worked closely with teachers in their classrooms to develop a preschool

curriculum based on Piaget's theory. Since 1980, she has been working in classrooms to develop new ways of teaching arithmetic based on Piaget's theory. *Sessions: Thurs. 2:45-4:15; Fri. 10:15-11:45, 2:45-4:15*

Constance Kamii's attendance is sponsored by EED, Mary Claire Harris, ACTM, and the Association for the Education of Young Children, SE Alaska.



Michael Klentschy

Researcher in the Graduate School of Education at San Diego State University

Michael Klentschy is studying the longitudinal effects of inquiry-based science education on language minority populations and with the science-literacy connection. He is the

author of *Using Science Notebooks in Elementary Classroom*, and contributing editor of *Linking Science and Literacy in K-8 Classrooms*. His latest book is *Scaffolding Science Inquiry through Lesson Design*. *Sessions: Thurs. 1:00-4:15; Fri. 10:15-11:45*

Michael Klentschy's attendance is sponsored by the Juneau School District and EED.



Larry LeDoux

Commissioner of the Alaska Department of Education & Early Development

Before serving as Commissioner, Larry LeDoux was superintendent of the Kodiak Island Borough School District. Prior to that, he served as principal of North Star Elementary School, and of Kodiak High School, where he also

taught science and math. *Session: Thurs. 8:30-9:00*



Pat M. Shane

2009-2010 President of the National Science Teachers Association

Pat Shane is associate director of the Center for Mathematics and Science Education and clinical professor of science education at the University of North Carolina at Chapel Hill. She has extensive leadership and teaching

experience through her work as a classroom teacher, central office administrator, professional developer, college professor, and science consultant. Her work interests lie in promoting quality science education, especially at the elementary level; helping to retain science teachers; and working to coordinate science with other subject areas. *Session: Thurs. 10:15-11:45*

Pat Shane's attendance is sponsored by NSTA and Alyeska Pipeline Service Company



Bob Williams

2009 Alaska Teacher of the Year

Bob Williams believes that being a math teacher is the most rewarding and best job in the world. He taught in The Gambia, West Africa as a Peace Corps volunteer and in New York City. Missing Alaska, he then returned to the state where he taught in various communities before

settling in the Mat-Su Valley where he currently teaches at Colony High. *Sessions: Thurs. 10:15-11:45; Fri. 8:30-9:00, 1:00-1:45; Sat. 9-12*

Bob Williams' attendance is sponsored by EED.

Thursday, October 15

JDHS Auditorium

8:30 am

*Welcoming Remarks, Commissioner Larry LeDoux
Alaska Department of Education & Early Development*



K e y n o t e A d d r e s s

Ken Wesson

*Educational Consultant
San Jose, California*

*The Neuroscience of Learning and
Methods for Creating Classrooms
and Learning Environments that are
Brain-Considerate*

The biologically-based operating principles by which the human brain organizes, encodes, stores and retrieves information were well-guarded neurological secrets for centuries. However, recent research in the cognitive neurosciences has revealed more about the human brain in the past five years than in all of our previous human history. In this brief conversation about the human brain, we will discuss “what works, what lasts, and why” based on what we have learned recently from the field of cognitive neuroscience.

Kenneth Wesson delivers keynote addresses on the neuroscience of learning for educational organizations and institutions throughout the United States and overseas. His audiences range from pre-school and early childhood specialists to college and university-level administrators and faculty members. He has

spoken to educators from six of the world’s seven continents and can be seen on PBS and other special programs on brain development.

Sponsored by Delta Education – FOSS,
<http://www.delta-education.com/science/foss/index.shtml>

Additional Session with Ken Wesson

Brain Based Education: In this session we will explore the structures and functions of the brain, and leave participants with a working knowledge of what conditions you can orchestrate in your classrooms to maximize learning opportunities for your students.

Thursday, October 15, 1:00pm - 2:30pm. Room:
Auditorium

10:15 – 11:00

Alaska Learning Labs—

An After-school Learning Program

Room 219

Alaska Learning Labs will cover our strategies for teaching math in an SES after-school tutoring program. We provide both online and hands on learning opportunities. Two examples of our resources include Compass Learning and Box Cars & One-Eyed Jacks. Our programs run state-wide and year-round. We use our online store to provide incentives and prizes to reward students for achieving learning goals. This is a program that works, students show significant growth between pre and post tests, and students, teachers, and administrators like it! We help students who are struggling in school grasp math content and ideas.

Laura Lee Allen, SERRC (Southeast Regional Resource Center)

K-2 3-5 6-8 9-12 Th 10:15-11:00 Fri 10:15-11:00

Math Intervention Solutions— Mathematics Navigator

Room 120

Learn about Mathematics Navigator, a modular intervention that targets and fills critical gaps and clears up misconceptions in mathematics understanding to help students in grades 2 and above catch up.

Kellie Steiner, America's Choice

3-5 6-8 9-12 Special Education Title 1

Th 10:15-11:00 Fri 10:15-11:00

Space in Your Future

Auditorium

Information will be presented on the new (2009) and the upcoming (2010) science missions in earth orbit and beyond.

Steve Maran, Retired NASA Astronomer

Th 10:15-11:00 Th 11:05-11:50

“Spurring” Your Student into Volcanology:

Volcanic Effects

Room 307

This NASA Mission Geography lesson focus on volcanoes and geography by utilizing Alaskan Volcano data. Participants learn how NASA satellites were used to monitor Mount Spurr and gather different types of data. Participants compare data from a Space Shuttle photograph and satellite data to determine effects of eruptions on Alaska's atmosphere.

Brian Hawkins, NASA Education

6-8

Th 10:15-11:00 Fri 3:35-4:20

UAF & Fairbanks Secondary Alignment Efforts **Room 214**

The University of Alaska Fairbanks and the Fairbanks North Star Borough School District have worked to improve the success of student's transitioning from secondary to postsecondary education. This presentation will describe our joint efforts to date.

Dana L. Thomas PhD, University of Alaska Fairbanks

9-12 Postsecondary

Th 10:15-11:00

What Does inquiry Look Like in the Primary Classroom?

Room 118

What does hands-on inquiry science look, sound and feel like in the primary classroom? Come join us as we explore physical, life and earth science investigations with K-3 age children—using questioning strategies, supporting language development and sharing of ideas as children investigate natural objects and situations in the world around them. A variety of science lessons will

be modeled using an integrated approach—science content with reading, writing and math! We'll be giving ideas/examples as well as engaging in a constructivist model of learning—incorporating documentation, questioning and investigations skills and strategies. Teachers will be encouraged to share their thinking, ideas, questions and strategies for engaging children in science investigations!

Jennifer Thompson and Chris Thomas, Juneau School District

K-2 Preservice Administration

Th 10:15-11:00

10:15 – 11:45

A New Face to the 3Rs:

A Focus on Science Teacher Retention

Library

This session will focus on the importance of retaining our science teachers. It will present some ideas about the 3Rs of Retention:

Resources, Respect, and Renewal.

Patricia M. Shane,

National Science Teachers Association

Th 10:15-11:45

Alaska Seas and Rivers for Grades 3-5

Room 321

Learn about the new free Alaska Seas and Rivers units of instruction for grades 3-5! Units promote inquiry and observation through investigation of the local aquatic environment. Investigations incorporate the use of writing and science notebooks, are aligned to Alaska standards and GLEs, and much, much more!

Terry Slaven and Jessie Soder, Alaska Sea Grant

3-5

Th 10:15-11:45

Alaska Seas and Rivers for Grades K-2

Room 100

Learn about the new free Alaska Seas and Rivers units of instruction for grades K-2! Units promote inquiry and observation through investigation of the local aquatic environment. Investigations incorporate the use of writing and science notebooks, are aligned to Alaska standards and GLEs, and much, much more!

Trisha Herminghaus and Misty Brown, Alaska Sea Grant

K-2

Th 10:15-11:45

Build Observation Skills

Through Technical Drawing

Room 218

No artistic skills needed! Learn to give your students another tool to help them look more closely, make detailed observations, and communicate their discoveries. This session will increase educator skill in a classroom technique to use with students to improve their drawing and observation skills. Participants will take part in a graduated series of classroom technical drawing experiences, discuss the impact of adding the focused technical drawing component to scientific observations, and consider how best to implement the techniques with their students. This technique is a vital component of successful science notebook use and assists students in building both their observation skills and their descriptive language skills.

Joanna Hubbard, Anchorage School District

K-2 3-5 6-8 9-12 Postsecondary

Preservice Special Education

Th 10:15-11:45



Data Collection with the TI-Nspire **Room 323**
Come and learn about the new TI-Nspire handheld and how to use it in the Math and/or Science classroom for data collection.
Wendy Peel, Texas Instruments
6-8 9-12 Postsecondary Preservice
Special Education Administration Th 10:15-11:45 Th 2:45-4:15

FOSS Chemical Interactions for Middle School Students **Room 302**
Join us for a hands-on introduction to the particulate nature of matter. We'll model notebook use while investigating substances to learn about properties of matter, changes in matter, and energy interaction and transfer. Materials will be distributed.
Virginia Reid, Lawrence Hall of Science, University of California Berkeley
6-8 Preservice
Special Education Administration Th 10:15-11:45

Future Planning with the Alaska Career Information System **Room 104**
Technology here in Alaska has greatly impacted our ability to deliver career information and guidance. This Alaska specific Career Information System provides students and adults with comprehensive career planning & exploration resources, interactive self assessment tools which match personal interests/skills with possible occupations, information on postsecondary training options throughout the US as well as financial aid resources. It also provides teachers with more than 600 activities that are designed to infuse career information and career development concepts into various secondary curriculum areas. This session will walk participants through the nuts and bolts of the system while allowing interactive dialogue with Q&A.
CJ Allison, Alaska Commission on Postsecondary Education
6-8 9-12 Postsecondary Special Education Administration
Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15 Fri 10:15-11:45

Integrating Inquiry with Science Notebooks **Room 227**
Hands on science inquiry incorporating science notebooks to deepen conceptual understanding and strengthen expository writing skills.
Kathy Obersinner & Cherry Eckland, Juneau School District
K-2 3-5
Th 10:15-11:45

K-2 Tlingit Units and Science Curriculum **Room 308**
A panel of Tlingit teachers, educators, and specialists will discuss the various units that Sealaska Heritage Institute developed and how to integrate Tlingit ecological knowledge, language, and culture into teaching science.
Hans Chester, TCLL, SHI, JSD, Sealaska Heritage Institute
K-2 3-5
Th 10:15-11:45 Th 2:45-4:15

Math Trails **Room 225**
Math trails take place outside the classroom, therefore creating a sense of adventure and exploration while students get concrete learning experiences for mathematic concepts taught in the school curriculum. They can be used by students of any age from preschool through college level. Come learn how to design a trail and experience one of your own.
Pamela Garcia and Tina Pasteris, Juneau
K-2 3-5 6-8 9-12 Special Education
Th 10:15-11:45

Mining 101—History of the Great Mines of Juneau **Room 123**
This session will offer a comprehensive look at the development, operation and success of the three great mines of Juneau, the AJ (Alaska Juneau), the Treadwell, and the Alaska-Gastineau. Learn fascinating stories about the men that worked for gold: the remarkable owners and developers that came to this remote outpost, and those that followed to work in the mines. See historic photos and hear history come alive from Juneau's mine historian extraordinaire!!
David Stone, Deputy Commissioner, Alaska Department of Labor and Workforce Development
K-16
Th 10:15-11:45

Science in and Beyond the Stacks **Room 102**
In Alaska and want access to free information on various sciences? Come and find out about the resources available from the Alaska State Library and SLED (the Statewide Library Electronic Doorway). This sampling will lean heavily towards resources electronically accessible.
Maeghan Kearney, Alaska State Library
6-8 9-12 Postsecondary
Th 10:15-11:45

Seabirds and Climate Change **Room 226**
What can seabirds tell us about climate change in Alaska? This session is a new interactive, integrated science and mathematics program for secondary students. The Alaska Maritime National Wildlife Refuge has been studying seabirds across the Alaska coast for over three decades, and our long-term data set provides one example of how climate change is affecting our ocean ecosystem. The unit includes life sciences and earth sciences integrated with mathematics for use in secondary classrooms all over the state. Only real data is used in the program and field science processes are highlighted adding career education to the mix.
Lisa Matlock, U.S. Fish and Wildlife Service
6-8 9-12
Th 10:15-11:45 Fri 1:00-2:30

smART Art (Integrating Art with Math and Science) K-3 **Room 235**
The Elementary Art Specialists will lead K-3 teachers through art kit lessons that integrate Art with Math and Science. Participants will create art and become familiar with teaching resources available through the art kit check-out system of the Juneau School District. Participants will identify all JSD Art Kits that support Math and Science concepts. For out-of-town participants, lessons are available on the web. Emphasis on Primary Curriculum. Participants will create Fish Prints and examine characteristics of 3 local fish species.
Nancy Lehnhart and Mimi Walker, Juneau School District Elementary Art Program
K-2
Th 10:15-11:45

SOS: Science on a Sphere **Museum**
Science On a Sphere (SOS)® is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes

Sessions—Thursday, October 15



complex environmental processes, in a way that is simultaneously intuitive and captivating.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15 Fri 10:15-11:45
Fri 1:00-2:30 Fri 2:45-4:15

The Big Ideas of K-12 Mathematics Room 206

This session will discuss the role of important concepts as a content strategy for improving student learning in mathematics in grades K-12. The session will identify big ideas in Elementary, Middle School, and High School mathematics, and illustrate how these big ideas allow students to form more meaningful mathematical connections across grades.

Jim Choike, Oklahoma State University

K-2 3-5 6-8 9-12 Postsecondary Preservice Special Education
Administration Th 10:15-11:45

The Importance of Children in Nature Room 216

A National Movement to “Leave No Child Inside” is gaining momentum as parents, teachers, healthcare professionals and community leaders recognize the importance of connecting children to nature. Learn about the benefits to children from frequent experiences out-of-doors. Find out how to use the outdoor classroom to foster healthier, happier, smarter and well-adjusted children.

Kristen Romanoff, Alaska Department of Fish & Game

K-2 3-5 6-8 9-12 Th 10:15-11:45 Fri 10:15-11:45

The Twelfefold Way Room 318

The Twelfefold Way is a unified model for counting permutations, combinations and partitions. Working in pairs, participants will use manipulatives to learn about basic concepts in discrete mathematics and how these might be introduced at the secondary level.

Sunny Mall, Univeristy of Alaska Anchorage College of Education

6-8 9-12 Postsecondary Th 10:15-11:45

Using Technology to Improve Mathematical Instruction

Room 224

Bob Williams, Alaska 2009 Teacher of the Year, once slept in his rental car to keep costs down at an NCTM Annual Meeting. He asks, “What technology gives the most bang for the buck?” Topics will include Geometers’ Sketchpad, Google Sketch Up, and leveraging current technology, with a focus on using technology to improve the clarity of instruction and students’ performance.

Bob Williams,

Mat-Su Borough School District Th 10:15-11:45

Yup’ik Science Museum

The Yup’ik people have no word for science, yet their tools were so well designed that they allowed the Yupiit to live in a land no one else would inhabit. The exhibition Yuungnaqpiallerput/ The Way We Genuinely Live: Masterworks of Yup’ik Science and Survival presents remarkable 19th and 20th century tools, containers, weapons, watercraft, and clothing in an exploration of the scientific principles and processes that have allowed the Yup’ik people to survive in the sub-arctic tundra of the Bering Sea coast.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15 Fri 10:15-11:45
Fri 1:00-2:30 Fri 2:45-4:15

11:05 – 11:50

Assessment Center and Skills Alaska in the Elementary Class Room 121

What’s all the hype about computer-based instruction? Come experience this hands-on session for elementary math and science teachers (grades K-6). Learn about Assessment Center, an on-line, Standards-based Assessment web-site, and Skills Alaska, an interactive, web-based instructional program. Both provide for individualized instruction and formative assessment to help keep track of student progress. Come see these engaging programs in action!

Kathryn Horner and Mari Lammer, Nome Public Schools

K-2 3-5

Th 11:05-11:50

Clouds for Kids Room 310

Teaching clouds in a fun, multi-modal way! Kids can learn about some common cloud types, how they form, when and where they are found and what they mean for the weather while constructing a cloud mobile to hang in the classroom or take home.

Jim Green, Williwaw Publishing

K-2 3-5

Th 11:05-11:50

Pathways to Success: Summer Enrichment Programs at UAA Room 219

The University of Alaska Anchorage offers a number of summer enrichment programs designed to foster, affirm, and encourage student interest science. These programs utilize inquiry-based learning strategies and include programs for high school students and for undergraduate students. These enrichment programs have met with great success. This session will present some of the highlights of these enrichment programs.

Dr. David Pfeiffer, University of Alaska Anchorage

9-12 Postsecondary

Th 11:05-11:50

Space in Your Future Auditorium

Information will be presented on the new (2009) and the upcoming (2010) science missions in earth orbit and beyond.

Steve Maran, Retired NASA Astronomer

Th 10:15-11:00 Th 11:05-11:50

www.student.interest.for.content.literacy.omg Room 228

During this session, we will address the need to meet students at their interest level to create genuine collaboration and content knowledge mastery using Web 2.0 tools. We will discuss the benefits and challenges of using Web 2.0 tools, as well as explore examples that may be used in the classroom.

Woody Woodgate, Alaska Department of Education

& Early Development

6-8 Postsecondary

Th 11:05-11:50



1:00 – 1:45

Educational Opportunities with Citizen Science Room 318

Explore opportunities and possibilities of connecting students with an interest in environmental science with Alaska tour operators, local nonprofit organizations and Citizen Science participants. Benefits for students include: hands-on learning through research and data collection, field support, networking, and development of important job skills. Internships welcome. Students will also receive a broad understanding of resource management from multiple stakeholder viewpoints.

Jeremy Gieser / Gastineau Guiding, Gastineau Guiding
9-12 Th 1:00-1:45

Inquiry Science Online: Is It for Everyone? Room 121

Inquiry science is practiced in classrooms, on playgrounds and in the great outdoors throughout the world. The hands-on/minds-on nature of these experiences excite students about making observations, data collection, data interpretation and sharing their findings. Can inquiry science be experienced online? Where can online activities be found? How can teachers continue to excite students about doing science on their own and online? Learn the answers to these questions while experiencing inquiry science online.

Ted Munsch, Alaska Pacific University
3-5 6-8 9-12 Th 1:00-1:45 Fri 3:35-4:20

Professor Fredenberg's Marvelous Math Facts Room 314

Reorganizing the Facts tables can lead to many activities connecting math concepts. Come and explore.

Professor Fredenberg, UAS
3-5 6-8 Th 1:00-1:45 Fri 3:35-4:20

Western Science and Native Alaskan Tradition Room 308

The modern scientific method has proven to be an effective and powerful tool for understanding the world around us. Imbedded in the rich oral history of Alaska's First Peoples are scientific observations and discoveries. These allowed the people to make predictions about their world and ensure sustainable harvests. Teaching these to students is valuable on many different levels.

Aaron Baldwin, Juneau School District
K-2 3-5 6-8 9-12 Postsecondary Th 1:00-1:45 Fri 1:00-1:45

1:00 – 2:30

A Culturally Relevant Math Program that Works: MCC Room 123

This hands-on workshop will provide participants with concrete and challenging culturally relevant math teaching. We will show how math and culture connect. For example, how to use Alaska Native knowledge to teach fractions. Data will show that Math in a Cultural Context is an effective program.

Jerry Lipka; Dora Andrew-Ihrke; Nicolle Gilsdorf, Math in a Cultural Context, University of Alaska Fairbanks
3-5 6-8 Preservice Administration Th 1:00-2:30 Fri 2:45-4:15

Alaska Biogeography: Plants and their Symbionts Room 226

This session will discuss the basic ecological concepts of phenology, invasive plants, and nitrogen fixation using plant-symbiont relationships and mycorrhizae as a unifying theme, and discuss the lesson plans and experiments that educators can implement in their own classrooms. Our goal is to get as many 7-12 Alaska science teachers as possible to implement field research and data sharing throughout the state.

Ruth Knight and Alina Cushing, EPSCoR (UAF/UAS)
6-8 9-12 Th 1:00-2:30 Fri 2:45-4:15

Anatomy of a Lesson on Algebraic Thinking Room 206

This session will illustrate how to analyze content and skills that are critical to solving content-rich textbook story problems, and use this analysis to transform the story problem into a developmentally unfolding lesson that involves students in thinking algebraically.

Jim Choike, Oklahoma State University
6-8 9-12 Postsecondary Preservice
Special Education Administration Th 1:00-2:30

Brain Based Education Auditorium

In this session we will explore the structures and functions of the brain, and leave participants with a working knowledge of what conditions you can orchestrate in your classrooms to maximize learning opportunities for your students.

Ken Wesson, Educational Consultant Th 1:00-2:30

Future Planning with the Alaska Career Information System Room 104

Technology here in Alaska has greatly impacted our ability to deliver career information and guidance. This Alaska specific Career Information System provides students and adults with comprehensive career planning & exploration resources, interactive self assessment tools which match personal interests/skills with possible occupations, information on postsecondary training options throughout the US as well as financial aid resources. It also provides teachers with more than 600 activities that are designed to infuse career information and career development concepts into various secondary curriculum areas. This session will walk participants through the nuts and bolts of the system while allowing interactive dialogue with Q&A.

CJ Allison, Alaska Commission on Postsecondary Education
6-8 9-12 Postsecondary
Special Education Administration Th 10:15-11:45 Th 1:00-2:30
Th 2:45-4:15 Fri 10:15-11:45

Iditarod—The Last Great Math and Science Teaching Race! Room 102

Strategies to connect the Iditarod Trail Sled Dog Race to science and math curriculum, technology integration, problem solving, Preview of the 2010 Science and Math Connections and Iditarod Insider for Educators. Discover ways to connect the race to content and cultural education through out the school year.

Diane Johnson, Director of Education, Iditarod Trail Sled Dog Race
K-2 3-5 6-8 9-12 *Special Education* Th 1:00-2:30
Fri 10:15-11:45

Increasing Student Success with Algebra Nspired

Come learn about Algebra Nspired. Algebra Nspired focuses on helping students explore and investigate key principles in Algebra using technology as a learning tool. In this hands-on session, participants will learn about the “Action/Consequence/Reflection” lessons that are an integral part of the TI-NspiredT classroom. We will explore the activities and resources that are part of the Algebra Nspired programs. Every participant will receive free tutorials, software and activities—a \$125 value.

Melody DeRosa, Texas Instruments

9-12

Room 310

Th 1:00-2:30

Inquiry Science Using STC Elementary

Join us for an interactive exploration into the world of research-based inquiry science with STC®. Participants experience hands-on sample activities using STC®. Science and Technology for Children® was developed by the National Science Resources Center and is exclusively published and distributed by Carolina Biological Supply Company.

Linda Squibb and Alison Smith, Juneau School District

K-2

Room 323

Th 1:00-2:30

Integrating Technology into the Math Classroom

Mathematics and Technology Infused Learning: this workshop explores how to integrate mathematics learning with digital content and tools through multiple ideas and models. Participants leave with multiple ideas and models for technology infused math lessons. Lesson development emphasize appropriate technology infusion techniques and skills with iWork, iLife, and the Mac OS.

Pete Vraspir, Apple Professional Development

6-8

Room 200

Th 1:00-2:30 Fri 2:45-4:15

Science Teacher Education Program at UAF

Ten K-12 science teachers will present information about the Science Teacher Education Program (Geophysical Institute, University of Alaska Fairbanks). The most recent Summer Institute was focused on the 2009 eruptions of Mt. Redoubt. Teachers will describe their experience working with scientists and educators to increase core science knowledge, and talk about writing and field-testing hands-on inquiry lessons based on Alaska Grade Level Expectations. Teachers will lead interactive demonstrations of sample lessons, present a slide show, and share visual materials.

Brian Bailey, Kyle Casper, Carol Cologie, RaeAnn Edwards, Mare Fenno, Jim Granata, Dana Grimm, Millie Peek, Tamie Webb, and Tanya Wimer, University of Alaska Fairbanks

K-2 3-5 6-8 9-12

Room 227

Th 1:00-2:30

SEPUP Life, Earth and Physical Issues

This session's focus will be on the Issues in the SEPUP Middle School Courses/Units. As an example participants will be utilizing our signature Mini Stream Tables and Topography models to collect data as to where to build a house. Handouts will include teacher and student pages from SEPUP Issues. This will be a highly interactive, collaborative session modeling the SEPUP approach to learning in a science classroom. All materials and handouts will be provided.

Mark Koker, Lab-Aids, Inc

6-8

Room 302

Th 1:00-2:30 Fri 2:45-4:15

SOS: Science on a Sphere

Science On a Sphere (SOS)® is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15

Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

Museum

The Cryosphere: A Hands on Approach

This session will introduce hands-on activities that provide differentiated instruction about the Cryosphere. These lessons are inquiry based and can be easily adapted for different grade levels.

Adriana Rodriguez, Juneau School District

6-8 9-12

Th 1:00-2:30

Using an NCTM Journal Article for Professional Development

Articles from NCTM journals provide teachers, coaches, and others with a rich resource for professional development. The Mathematics Teacher article, “Dreaded ‘Work’ Problems Revisited” is the highlighted article for NCTM’s Focus of the Year on Connections. Participants will uncover multiple approaches to algebra rate problems while making connections between ratio, proportion, fractional and inverse relationships, and algebra using multiple representations.

Murrel Hoover, Teachers Development Group

6-8 9-12 Postsecondary Preservice Administration

Th 1:00-2:30

Room 224

Using Icons of Depth and Complexity to Facilitate Inquiry

The Icons of Depth and Complexity are a flexible tool that can be used to facilitate inquiry for all levels of learners in all areas of learning. Participants will practice using the Icons and will take a set of Icons from the session to use in their classrooms.

Anne Jones, University of Alaska Southeast, School of Education

K-2 3-5 6-8 9-12

Th 1:00-2:30

Room 214

Using Technology to Teach Math

This session will provide participants with an exciting list of possibilities for using technology in the math classroom for both teachers and students. Examples to be discussed during the first half of the session include podcasts, online math manipulatives and tutorials, wikis and blogs, calculators, GPS, probeware, Web resources, widgets, software, streaming video, digital tablets and more! The second half of the session will be used to allow participants to investigate, discover, collaborate and explore options for how they might use some of the technologies presented in their own classrooms.

Gayle Nixon, Craig City School District

3-5 6-8 9-12

Th 1:00-2:30

Room 219

Yup'ik Science

The Yup'ik people have no word for science, yet their tools were so well designed that they allowed the Yup'it to live in a land no one else would inhabit. The exhibition Yuungnaqpiallerput/The Way We Genuinely Live: Masterworks of Yup'ik Science and Survival presents remarkable 19th and 20th century tools, containers, weapons, watercraft, and clothing in an exploration of the scientific principles and processes that have allowed the Yup'ik people to survive in the sub-arctic tundra of the Bering Sea coast.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15
Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

Museum

Seasons and Biomes:

Developing Student Inquiries

Room 100

Learn how to do inquiry with your students including how to develop testable / researchable questions based on observations of the local environment. Results of environmental change investigations may be significant locally, regionally, and globally. Your students can become part of a global learning community through the Seasons and Biomes project and the GLOBE Student Climate Change Research Campaign.

Elena B. Sparrow, Martha Robus Kopplin, International Arctic Research Center, UAF

6-8

Th 1:00-4:15

1:00 – 4:15

Integrating Indigenous Knowledge into Standards-based Math

Room 320

Indigenous knowledge can fit into our Mathematics curriculum. Inupiat number system enhances understanding of numbers and operations. Tlingit basket patterns illustrate Geometry concepts. Yup'ik navigation strategies employ notions of measurement. Athabascan game demonstrates Probability. Alaska Native stories provide context for Problem Solving. These practical ways infuse indigenous knowledge into Mathematics curriculum and will be addressed in this session.

Dr. Claudette Engblom-Bradley, Alaska Pacific University

3-5 6-8 9-12

Th 1:00-4:15

Replacing Thingamajig In Math-Language For Success

Room 225

This session will introduce teachers to the Developmental Language Process designed to instill academic language into the long term memories of the students. This process increases comprehension in listening and reading and creative expression in speaking and writing through motivating activities and natural process of language learning.

Jim MacDiarmid, Sealaska Heritage Institute

K-2 3-5 6-8 9-12 Postsecondary Preservice Special Education Administration
Th 1:00-4:15 Sat 9:00-12:00

Science Notebooks: Scaffolding Science Inquiry Library

An engaging scenario with the participants being stranded in the dark in the Haunted Mansion at Disneyland with only a wire, a battery and a bulb leads them to discover how a simple circuit works and how to record their understanding using a science notebook. Scaffolded Guided Inquiry strategies using science notebooks engage participants in learning on two levels: they learn science content in the context of developing the ability to make evidence based explanations of what they have learned and of making meaning through class discussion and writing claims/evidence/conclusion statements in science notebooks. Participants will receive writing scaffolds, rubrics and lesson design tools for classroom use.

Michael Klentschy, San Diego State University

K-2 3-5 6-8

Th 1:00-4:15

Sea Perch

Room 216

An introduction to building a simple, remotely operated underwater vehicle, or ROV. Sea Perch in the classroom gives students the opportunity to explore robotics, engineering, marine science and more through fun, hands-on inquiry.

Tennie Bentz, Haines

6-8

Th 1:00-4:15

The Science of SMART

Room 321

Get started with SMART in your science classroom. Learn how to leverage the power of Notebook 10 software to engage, empower, and enlighten your science students.

John Bento, Chariot Group

K-2 3-5 6-8 9-12 Preservice

Th 1:00-4:15

1:50 – 2:35

Designing Place-Based Investigations

Room 115

Learn the basics of designing field investigations driven by observation and student questions. Tips and strategies for getting started, managing groups, data collection, mapping and technology integration will be shared. Examples of jellyfish surveys and berry picking will be highlighted. Appropriate for grades 2-5.

Paula Savikko, Juneau School District

K-2 3-5

Th 1:50-2:35

GoogleEarthQuest: Minerals Exploration Alaska

Room 121

There is power in teaching with geospatial technologies and Google Earth. This session will highlight The Pebble Project and mineral exploration in Alaska, including infrastructure, environmental studies and careers connected to the minerals industry.

Michael Warren, AMEREF

6-8 9-12 Postsecondary

Th 1:50-2:35

Project Lead the Way

Room 120

Learn more about this national pre-engineering curriculum adopted by Juneau Douglas High School's Architecture, Construction and Engineering Academy. Project Lead the Way is based on national math and science standards and provides students with applied learning using hands-on, real-world projects and problems. A sequence of courses prepares students with the foundations of engineering at high levels of rigor that prepare them for demanding college engineering programs.

Craig Mapes, Ricky Bass, Ben Collman, Carin Smolin, Juneau School District

9-12 Postsecondary

Th 1:50-2:35

Understanding by Design in the Math Classroom

Room 118

Understanding by Design—Backwards design in your High School Math classroom to determine desirable student outcomes and then plan your instruction to ensure students meet this goal.

Scott Skene, Pearson Prentice Hall

6-8 9-12

Th 1:50-2:35

Vocabulary of Variables Using Cuisenaire Rods

Room 309

Activity title: The Big Orange. Students create as many rod arrangements as possible whose length equals the big orange rod. When documenting the arrangements, students naturally ask for shortcuts: May I use R to represent the red rod? Could I say 2R's instead of R + R? Is R + G + Y the same combination as G + R + Y? While discussing rules for naming arrangements, students develop variable vocabulary: combine like terms, commutative property, associative property, coefficient, variable, substitution, etc.

Joyce Metsa, Annette Islands School District
6-8

Th 1:50-2:35

2:45 – 3:30

Carnegie's Bridge to Algebra: We Have Used It

Room 316

Come find out what we learned about this software and how we plan to use it in the future.

Dustin Moore and others, Kodiak Island BSD
6-8 9-12

Th 2:45-3:30

If You Give a Moose a Computer, Then He'll Write a Proof

Room 310

Help students take ownership of writing mathematical proofs by integrating technology tools into the logic writing process. Presenter will share a class wiki containing teacher created materials and student work. Participants will leave with lesson plan for an 'if, then' storybook, conditional statement lesson, two column and flowchart proofs, and student samples of proofs that use geometer's sketchpad, power point, and Mixbook.

Teresa A Hall, Fairbanks North Star Borough School District
6-8 9-12 Technology

Th 2:45-3:30 Th 3:35-4:20

Science for Scientists versus Science for Citizens: Two Views

Room 218

This presentation will discuss the fine line between essential scientific knowledge, societal impacts, and deep academic pursuit.

Joel Curtis, National Weather Service
6-8 9-12 Postsecondary

Th 2:45-3:30 Fri 1:00-1:45

Second Life in Secondary and Postsecondary Education

Room 318

What is Second Life? How is it used by educators? What is happening in Alaska vis-a-vis Second Life? What are the promises and pitfalls of using Second Life with high school and university students; in staff and teacher professional development?

Chip McMillan, University of Alaska Southeast
9-12 Postsecondary Preservice Administration

Th 2:45-3:30

Smart Skies—NASA's Online Air Traffic Control Simulator

Room 102

Teach Math using NASA's Air Traffic Control Simulation called Smart Skies. Also introduces youth to Air Traffic Control as a career option.

Angie Slingluff, FAA
6-8 9-12 Careers

Th 2:45-3:30

Solving for Xs and Whys: Brain Research in the Classroom

Room 214

This session, based on How People Learn and How Students Learn from the National Research Council, will focus on applying brain research in the math classroom. Teachers will leave with some practical ideas for implementation.

Kevin Judd, Whizz Education

K-2 3-5 6-8 9-12 Administration

Th 2:45-3:30

2:45 – 4:15

Astrobiology—A Real Inquiry Investigation

Room 226

Use Astrobiology topics to explore What is Life?, where can life be found, why look for extremophiles, and Playing the Numbers. Resources, activities, and inquiry lessons from NASA, the SETI Institute and National Astrobiology Institute will be shared.

Debbie Soltis, Anchorage School District

6-8 9-12 Postsecondary

Th 2:45-4:15

Constructivist Math: Encouraging Children to Do Their Own Thinking (K-5)

Room 116

Two examples will be given to illustrate how constructivist teachers encourage children to do their own thinking. In the first example, teachers gave "physical-knowledge activities" to 26 first graders who came to school without any number concepts. In the second example, teachers refrained from teaching "carrying" and "borrowing" and encouraged second graders to invent their own procedures.

Constance Kamii, University of Alabama at Birmingham

K-2 3-5

Th 2:45-4:15

Data Collection with the TI-Nspire

Room 323

Come and learn about the new TI-Nspire handheld and how to use it in the Math and/or Science classroom for data collection.

Wendy Peel, Texas Instruments

6-8 9-12 Postsecondary Preservice Special Education

Administration

Th 10:15-11:45 Th 2:45-4:15

FIRST LEGO League— Elementary & Middle School Robotics

Room 219

Love playing with LEGOs? Enjoy hands-on practice building and programming with LEGO-based robots! The FIRST LEGO League introduces younger students to real-world engineering challenges by building robots to complete tasks. FLL teams, guided by their imaginations and adult coaches, discover exciting career possibilities and, through the process, learn to make positive contributions to society.

Rebecca Parks, Juneau Economic Development Council

3-5 6-8

Th 2:45-4:15

Fun with the Fibonacci Sequence

Room 314

After defining the Fibonacci sequence, we will discover some interesting patterns by experimentation and audience participation.

Jill Dumesnil, Univ. of Alaska Southeast

6-8 9-12 Postsecondary

Th 2:45-4:15

Future Planning with the Alaska Career Information System

Room 104

Technology here in Alaska has greatly impacted our ability to deliver career information and guidance. This Alaska specific Career Information System provides students and adults with comprehensive career planning & exploration resources, interactive self assessment tools which match personal interests/skills with possible occupations, information on postsecondary training options throughout the US as well as financial aid resources. It also provides teachers with more than 600 activities that are designed to infuse career information and career development concepts into various secondary curriculum areas. This session will walk participants through the nuts and bolts of the system while allowing interactive dialogue with Q&A.

CJ Allison, Alaska Commission on Postsecondary Education

6-8 9-12 *Postsecondary Special Education Administration*

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15 Fri 10:15-11:45

Integrating Math, Science and Culture using MCC Units

Room 123

Participants will be shown how Math in a cultural Context (MCC) units are used in a middle school inquiry based program to teach math and science GLEs as well as Cultural standards. Students will guide participants through hands on activities and showcase work. Units and projects from our 2nd/3rd grade “math buddy” classroom will also be shown.

Laurel Sands and Students, Dillingham City School District

3-5 6-8

Th 2:45-4:15 Fri 1:00-2:30

Integrating Technology into the Math Classroom

Room 200

Mathematics and Technology Infused Learning: this workshop explores how to integrate mathematics learning with digital content and tools through multiple ideas and models. Participants leave with multiple ideas and models for technology infused math lessons. Lesson development emphasize appropriate technology infusion techniques and skills with iWork, iLife, and the Mac OS.

Pete Vraspir, Apple Professional Development

9-12

Th 2:45-4:15 Fri 1:00-2:30

K-2 Tlingit Units and Science Curriculum

Room 308

A panel of Tlingit teachers, educators, and specialists will discuss the various units that Sealaska Heritage Institute developed and how to integrate Tlingit ecological knowledge, language, and culture into teaching science.

Hans Chester, TCLL, SHI, JSD, Sealaska Heritage Institute

K-2 3-5

Th 10:15-11:45 Th 2:45-4:15

Making It Conceptual with Algebra Tiles

Room 232

A hands-on lesson using Algebra Tiles for solving number problems and inequalities.

Ryan Dorsey, Juneau School District

6-8 9-12

Th 2:45-4:15

Making Large Scale Independent Science Projects Work

Room 202

This purpose of this session is to give teachers an effective and time-tested approach to assigning and assessing large scale independent science projects. Emphasis will be given to assisting students in participating in the Alaska State Science Fair and the creation of science mentor relationships.

Jonathan Smith, Juneau School District

6-8 9-12

Th 2:45-4:15

MapTEACH: Place-based Geospatial Learning in Alaska

Room 206

Explore the new MapTEACH curriculum for grades 6-12, focused on developing spatial technology skills within the contexts of geology, geography and local knowledge. Lessons target use of GPS receivers and Macintosh-based GIS software, and address Earth Science topics such air photo interpretation, erosion, deposition and change over time. Participants will receive a CD containing the curriculum, software and data.

Sidney Stephens and Patty Burns, University of Alaska Fairbanks and DNR Mining Lands and Water

6-8 9-12 *Preservice*

Th 2:45-4:15 Fri 10:15-11:45

SOS: Science on a Sphere

Museum

Science On a Sphere (SOS)® is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15

Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

Student Success with Levels of Inquiry

Room 309

Engage your students in all levels of inquiry! In this highly interactive, hands-on session, participants will experience each level of inquiry together. You’ll get first-hand experience in explore, directed, guided, & open inquiry approaches, learning practical ways to scaffold and inspire your students, and helping them to fully understand the power of science inquiry.

Debra Hopkins, National Geographic School Publishing

K-2 3-5

Th 2:45-4:15

The Bridge to Somewhere: Geometry to Algebraic Expressions

Room 227

Participants will examine geometric patterns to generate equivalent algebraic expressions. Come prepared to work with graph paper and tiles to build, compare, discuss and share your math thinking.

Pat McDonald

6-8 9-12 *Preservice*

Th 2:45-4:15

Utilizing Technology to Differentiate Across the Curriculum Room 121

This workshop will be an overview of technology resources available in the Juneau School District to differentiate content, process, and final products in content areas, including Math, Science, Social Studies, and Language Arts. Some free online resources will be explored as well as Nettrekker, ExploreLearning, Classzone, and Atomic Learning.

John Wahl, Juneau School District

3-5 6-8 9-12 *Special Education Administration*

Th 2:45-4:15 Fri 10:15-11:45

Yup'ik Science

The Yup'ik people have no word for science, yet their tools were so well designed that they allowed the Yupiit to live in a land no one else would inhabit. The exhibition Yuungnaqpiallerput/ The Way We Genuinely Live: Masterworks of Yup'ik Science and Survival presents remarkable 19th and 20th century tools, containers, weapons, watercraft, and clothing in an exploration of the scientific principles and processes that have allowed the Yup'ik people to survive in the sub-arctic tundra of the Bering Sea coast.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15

Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

Museum

Differentiated Math Instruction using Modern Technology Room 118

Using Accelerated Math Program the teacher will diagnose each student's comprehension level on GLEs and allow them to move forward from there. Students will then be directed to a lesson on: Compass Learning Odyssey, peer tutoring, or direct instruction from the teacher. This is a more modern permutation of Vygotsky's ZPD by replacing adult guidance with computer guidance.

David L Jones, KGBSD

3-5

Th 3:35-4:20 Fri 10:15-11:00

If You Give a Moose a Computer, Then He'll Write a Proof

Room 310

Help students take ownership of writing mathematical proofs by integrating technology tools into the logic writing process. Presenter will share a class wiki containing teacher created materials and student work. Participants will leave with lesson plan for an 'if, then' storybook, conditional statement lesson, two column and flowchart proofs, and student samples of proofs that use geometer's sketchpad, power point, and Mixbook.

Teresa A Hall, Fairbanks North Star Borough School District

6-8 9-12 *Technology*

Th 2:45-3:30 Th 3:35-4:20

It's Just a Guy (or Girl) Thing

Room 224

Current brain research is revealing strong data that shows boys' and girls' brains work differently, particularly in the areas of literacy and spatial understanding. While most teachers probably already recognize that fact, new understanding offers opportunities for meaningful differentiation in strategies that can help all students. The Gurian Institute is focused on this research and many of those ideas will be shared in this session.

Patty Brown, Haines Borough School District

K-2 3-5 6-8 9-12

Th 3:35-4:20

3:35 – 4:20

Developing Emerging Science Leaders—Panel Discussion Room 230

Join a panel of experienced science educators from many backgrounds for an open-ended discussion about supporting early career science educators in taking the next step into leadership roles. This will include a question and answer session. Presider: Joanna Hubbard; Panel: Emma Walton, Anchorage; Jennifer Thompson, Juneau; Amy Eakin, Noorvik; and Mystery Educator TBA.

Joanna Hubbard, Anchorage School District

K-2 3-5 6-8 9-12 *Postsecondary*

Th 3:35-4:20

Using Fire—Amazing Inquiry Science

Room 120

Participants will enjoy conducting an inquiry based FIRELAB from Fire in Alaska—Testing the Fire Triangle. Attendees will also experience other fire lessons and an orientation to the other popular DNR education programs including the newest one: Alaska's Boreal Forest.

Matt Weaver, Alaska DNR

3-5 6-8 9-12

Th 3:35-4:20 Fri 1:50-2:35

Friday, October 16
JDHS Auditorium
8:30 am

Bob Williams, 2009 Alaska Teacher of the Year

Multiplying Strengths to Make a Better Product and Subtracting Weaknesses to Make a Difference

Sponsored by the Alaska Department of Education & Early Development, <http://www.eed.state.ak.us/>



K e y n o t e A d d r e s s

David Gallo

Woods Hole Oceanographic Institution

*Climate Change:
The Bottom Line*

There is little doubt that earth's climate is changing. The debate becomes about how much change is due to human activity and how much is due to other natural phenomena. Regardless of the cause, it's in our own best interest to understand the consequences of climate change and its impact on global society (national security, energy, water resources, etc.). But before we can begin to discuss these issues, we must better understand the role of the oceans.

Anthropologists attest that throughout recorded history, small changes in ocean circulation have had dramatic impacts on humanity. The bottom line is that the information we need to guide us into the future is out there. Whether we make understanding climate change a priority becomes more a question of leadership than capability.

David Gallo is director of Special Projects at the Woods Hole Oceanographic Institution. In his present role, David

works closely with scientists and engineers at the forefront of global exploration and discovery. He was one of the first oceanographers to use a combination of submarines and robots to map the undersea world. In addition to ocean exploration, he is currently interested in understanding the relationship between humanity and the sea. David is passionate about exploration and discovery and dedicated to communicating the importance of science and engineering to the public at large.

Sponsored by the University of Alaska Southeast,
<http://www.uas.alaska.edu/>

Additional Session with David Gallo

Origins, Evolution, and Destiny: Clues from the Deepest Sea.
Part of the Evening at Egan Lecture Series, Friday, October 16,
7:00pm at the Egan Auditorium.

10:15 – 11:00

Alaska Learning Labs—

An After-school Learning Program

Room 219

Alaska Learning Labs will cover our strategies for teaching math in an SES after-school tutoring program. We provide both online and hands on learning opportunities. Two examples of our resources include Compass Learning and Box Cars & One-Eyed Jacks. Our programs run state-wide and year-round. We use our online store to provide incentives and prizes to reward students for achieving learning goals. This is a program that works, students show significant growth between pre and post tests, and students, teachers, and administrators like it! We help students who are struggling in school grasp math content and ideas.

Laura Lee Allen, SERRC (Southeast Regional Resource Center)

K-2 3-5 6-8 9-12 *Th 10:15-11:00 Fri 10:15-11:00*

Alaska Science Consortium, Working to Improve Science Education

Room 218

The Alaska Science Consortium (ASC) is a coalition of teachers, districts, and EED working together to improve the teaching of science using State and National Standards and the ASC Learning Cycle Model. The Consortium involves scientists and teachers in the training of their colleagues in inquiry science, process, skills, and content knowledge as it relates to the local environment, child development theory, and developmentally appropriate practice.

Mark O'Brien, Ketchikan Gateway Borough

K-2 3-5 6-8 9-12 *Postsecondary Preservice Administration*

Fri 10:15-11:00 Fri 11:05-11:50

COSEE-Alaska: Ways of knowing Ocean Climate Change, Part I

Room 214

Learn about what Alaska's new Center for Ocean Science Education Excellence (COSEE) will offer teachers and students around a theme of "people, ocean, and climate change." The session will highlight current Alaska ocean climate change science and COSEE efforts to connect and provide resources for scientists, teachers and marine educators to increase ocean and climate change literacy.

Marilyn Sigman, COSEE-Alaska

3-5 6-8 9-12 *Preservice*

Fri 10:15-11:00

Differentiated Math Instruction using Modern Technology

Room 118

Using Accelerated Math Program the teacher will diagnose each student's comprehension level on GLEs and allow them to move forward from there. Students will then be directed to a lesson on: Compass Learning Odyssey, peer tutoring, or direct instruction from the teacher. This is a more modern permutation of Vygotsky's ZPD by replacing adult guidance with computer guidance.

David L Jones, KGBSD

3-5

Th 3:35-4:20 Fri 10:15-11:00

Math Intervention Solutions— Mathematics Navigator

Room 120

Learn about Mathematics Navigator, a modular intervention that targets and fills critical gaps and clears up misconceptions in mathematics understanding to help students in grades 2 and above catch up.

Kellie Steiner, America's Choice

3-5 6-8 9-12 *Special Education Title 1*

Th 10:15-11:00 Fri 10:15-11:00

Teaching Physical Science!

Teaching Functions in Math

Room 314

Bridging the physical science concepts of speed, acceleration and mathematical functions with technology. Designed with teachers in mind that teach math and science, this hands-on workshop will use real time data collection with Vernier's motion detector and photo gates to uncover speed, acceleration, and Newton Laws visualized by linear and quadratic equations. You will leave this workshop with ideas how to make scientific investigations and mathematical functions more exiting and understandable.

Ute Kaden (UAF) and Uwe Hoffmann (Denali BSD),

UAF & Denali BSD & Alaska Space Grant

3-5 6-8 9-12 *Preservice*

Fri 10:15-11:00 Fri 11:05-11:50

10:15 – 11:45

Discussion Forum: College Readiness and Curriculum

Alignment in Mathematics, from K-12 to College Library

This session will serve to "kick-off" a continuing discussion among K-12 teachers and college faculty about preparation, transition and success of students in mathematics as they progress through high school and into college. Come share your thoughts, concerns and strategies regarding this issue. Jim Choike, the facilitator, will offer a national perspective on this topic while Dana Thomas, vice-provost at UAF will share his views from a university perspective, and Bob Williams, math teacher at Colony High School will offer a K-12 perspective. The session is structured so that everyone attending will have the opportunity to share ideas on this important topic.

Jim Choike, Oklahoma State University

Fri 10:15-11:45

FOSS Variables for Elementary and Middle School Students Room 227

Join us in a hands-on presentation featuring the FOSS (Full Option Science System) Variables course. Some of the most important scientific concepts students learn are the result of their ability to see relationships between objects and events. The Variables Module has four investigations that help students discover relationships through controlled experimentation. Materials will be distributed.

Virginia Reid, Lawrence Hall of Science,

University of California Berkeley

3-5 6-8 *Preservice Special Education*

Fri 10:15-11:45

Future Planning with the Alaska Career Information System

Room 104

Technology here in Alaska has greatly impacted our ability to deliver career information and guidance. This Alaska specific Career Information System provides students and adults with comprehensive career planning & exploration resources, interactive self assessment tools which match personal interests/skills with possible occupations, information on postsecondary training options throughout the US as well as financial aid resources. It also provides teachers with more than 600 activities that are designed to infuse career information and career development concepts into various secondary curriculum areas. This session will walk participants through the nuts and bolts of the system while allowing interactive dialogue with Q&A.

CJ Allison, Alaska Commission on Postsecondary Education

6-8 9-12 *Postsecondary Special Education Administration*

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15 Fri 10:15-11:45

Hierarchical Thinking in Understanding Place Value, Multiplication, and Elapsed Time

Room 116

Place value and elapsed time are especially hard to teach with textbook methods because traditional educators are unaware of the hierarchical thinking necessary to understand them. Hierarchical thinking will be explained, and educational implications will be discussed.

Constance Kamii, University of Alabama at Birmingham

K-2 3-5

Fri 10:15-11:45

Iditarod—The Last Great Math and Science Teaching Race!

Room 102

Strategies to connect the Iditarod Trail Sled Dog Race to science and math curriculum, technology integration, problem solving, Preview of the 2010 Science and Math Connections and Iditarod Insider for Educators. Discover ways to connect the race to content and cultural education through out the school year.

Diane Johnson, Director of Education, Iditarod Trail Sled Dog Race

K-2 3-5 6-8 9-12 Special Education

Th 1:00-2:30

Fri 10:15-11:45

Inquiry Projects Through Community-School Collaborations

Room 225

Takshanuk Watershed Council will share a variety of inquiry projects resulting from community-school collaborations. Examples include: composting of school lunch scraps, citizen science research, stream monitoring, middle school forest investigations, wildlife videography and high school credit classes.

Pam Randles, Takshanuk Watershed Council

K-2 3-5 6-8 9-12 Postsecondary

Fri 10:15-11:45

MapTEACH: Place-based Geospatial Learning in Alaska

Room 202

Explore the new MapTEACH curriculum for grades 6-12, focused on developing spatial technology skills within the contexts of geology, geography and local knowledge. Lessons target use of GPS receivers and Macintosh-based GIS software, and address Earth Science topics such air photo interpretation, erosion, deposition and change over time. Participants will receive a CD containing the curriculum, software and data.

Sidney Stephens and Patty Burns, University of Alaska Fairbanks and DNR Mining Lands and Water

6-8 9-12 Preservice

Th 2:45-4:15 Fri 10:15-11:45

smART Art (integrating Art with Math and Science) Grade 3-6

Room 235

The Elementary Art Specialists will lead grade 3-6 teachers through art kit lessons that integrate art with math and science. Participants will create art and become familiar with teaching resources available through the art kit check-out system of the Juneau School District. Participants will identify all JSD art kits that support math and science concepts. For out of town participants, lessons are available on the web. Emphasis is on intermediate curriculum. Participants will create art with water color, and Aleut patterned salmon, and discuss salmon as a renewable resource, life-cycle of the salmon, and cultural heritage.

Mimi Walker and Nancy Lehnhart, Juneau School District Elementary Art Program

3-5

Fri 10:15-11:45

SOS: Science on a Sphere

Museum

Science On a Sphere (SOS)® is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15

Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

The Importance of Children in Nature

Room 216

A National Movement to “Leave No Child Inside” is gaining momentum as parents, teachers, healthcare professionals and community leaders recognize the importance of connecting children to nature. Learn about the benefits to children from frequent experiences out-of-doors. Find out how to use the outdoor classroom to foster healthier, happier, smarter and well-adjusted children.

Kristen Romanoff, Alaska Department of Fish & Game

K-2 3-5 6-8 9-12

Th 10:15-11:45 Fri 10:15-11:45

The Science-Literacy Connection

Room 206

One of the major goals of K-12 science instruction is for classroom teachers to assist their students in developing the ability to make evidence-based explanations of what they have learned and scientific reasoning ability. There is a growing body of evidence that suggests that research-based classroom practices that incorporate student talk through focused group and classroom discussions and through the use of writing in the form of student science notebooks can significantly improve student achievement not only in science but in comprehension as well. This session will focus on the science-literacy connection highlighting best practice and research-based strategies for effective lesson design, science notebook utilization, writing and classroom discussion.

Michael Klentschy, San Diego State University

Fri 10:15-11:45

TI Resources and Support

Room 310

Activities, correlations, posters, tutorials, guidebooks, online courses and more! Join me for tour of all the TI support programs available for teachers, administrators, parents and your students. No matter which piece of technology you use, we have plenty of great resources to help you reach more students. Lots of goodies for everyone.

Melody DeRosa, Texas Instruments

9-12

Fri 10:15-11:45

Using Math-Whizz to Increase Student Learning

Room 100

This session will introduce participants to the newest and most advanced online math tutor. Math-Whizz uses artificial intelligence combined with fun animation and games to teach and tutor students in math. Used in over 3500 schools in the UK and in over 30 countries around the world, the program is new to Alaska. In a lab setting, participants will have an opportunity to experience the program as a student and will understand why students say Math-Whizz rocks.

Kevin Judd, Whizz Education

K-2 3-5 6-8

Fri 10:15-11:45

Sessions—Friday, October 16



Utilizing Technology to Differentiate Across the Curriculum

Room 121

This workshop will be an overview of technology resources available in the Juneau School District to differentiate content, process, and final products in content areas, including Math, Science, Social Studies, and Language Arts. Some free online resources will be explored as well as Netrekker, ExploreLearning, Classzone, and Atomic Learning.

John Wahl, Juneau School District

3-5 6-8 9-12 *Special Education Administration* Th 2:45-4:15
Fri 10:15-11:45

Yup'ik Science

Museum

The Yup'ik people have no word for science, yet their tools were so well designed that they allowed the Yupiit to live in a land no one else would inhabit. The exhibition Yuungnaqpiallerput/ The Way We Genuinely Live: Masterworks of Yup'ik Science and Survival presents remarkable 19th and 20th century tools, containers, weapons, watercraft, and clothing in an exploration of the scientific principles and processes that have allowed the Yup'ik people to survive in the sub-arctic tundra of the Bering Sea coast.

Alaska State Museum, Juneau

K-16 Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15
Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

11:05 – 11:50

Alaska Native Science Education and COSEE-Alaska, Part II

Room 214

This session will provide the context for successful strategies and resources for Alaska Native science education. The presentation will provide an overview of various current science education initiatives that address the learning of science and the science of learning from an Alaska Native perspective. Ocean science fairs and other activities planned as part of the COSEE-Alaska project will be highlighted, including the availability of on-site support for implementation.

Ray Barnhardt and Alan Dick, University of Alaska Fairbanks

K-2 3-5 6-8 9-12 *Postsecondary* Fri 11:05-11:50

Alaska Science Consortium, Working to Improve Science Education

Room 218

The Alaska Science Consortium (ASC) is a coalition of teachers, districts, and EED working together to improve the teaching of science using State and National Standards and the ASC Learning Cycle Model. The Consortium involves scientists and teachers in the training of their colleagues in inquiry science, process, skills, and content knowledge as it relates to the local environment, child development theory, and developmentally appropriate practice.

Mark O'Brien, Ketchikan Gateway Borough

K-2 3-5 6-8 9-12 *Postsecondary Preservice Administration*
Fri 10:15-11:00 Fri 11:05-11:50

Building Bridges to Content Literacy

Room 308

Tap into your students' natural curiosity about science! Join this session and learn practical ways to bridge the gap between science textbooks and students' fascination with real-world science. Participants will dive into high-interest expository text, learning practical strategies for activating prior knowledge, building background, accelerating vocabulary development,

and improving comprehension via exploration of expository text structures and features.

Debra Hopkins, National Geographic School Publishing

K-2 3-5 6-8 Fri 11:05-11:50

Complex Problem Solving

Room 224

Incorporating higher level thinking into a standards-based math curriculum.

Barb Mitchell, Juneau School District

3-5 Fri 11:05-11:50

Guide to the Permanent Fund and Its Publications

Room 318

A guide to the history, investments and operations of the Permanent Fund, including the print and online publications of the APFC. These publications provide material that can be used in Alaska studies, personal finance and mathematics curricula.

Laura Achee, Alaska Permanent Fund Corporation

6-8 9-12 *Postsecondary* Fri 11:05-11:50 Fri 1:00-1:45

Learning Math Using Weather and Climate Data

Room 309

Some easy-to-implement exercises applying math skills to real-world weather and climate science, from measurement science to probability and statistics and just about everything in between. Includes data sources and suggested uses.

Jim Green, Williwaw Publishing

3-5 6-8 9-12 Fri 11:05-11:50

Native Ways and Modern Science—Everything is Connected

Room 302

Former JDHS oceanography teacher Clay Good previews an online course he is developing for the ASDN. He will introduce teachers to using Teachers Domain, Google Earth, and other online resources to help create more culturally relevant learning for Alaska science students.

Clay Good, Alaska Staff Development Network (ASDN)

6-8 9-12 *Preservice* Fri 11:05-11:50 Fri 3:35-4:20

Probability Boards

Room 123

Explore beginning probability while developing key vocabulary by sorting a variety of concrete and abstract events using a probability board.

Carmen Wessels, Lower Kuskokwim School District

K-2 3-5 Fri 11:05-11:50

Teaching Physical Science! Teaching Functions in Math

Room 314

Bridging the physical science concepts of speed, acceleration and mathematical functions with technology. Designed with teachers in mind that teach math and science, this hands-on workshop will use real time data collection with Vernier's motion detector and photo gates to uncover speed, acceleration, and Newton Laws visualized by linear and quadratic equations. You will leave this workshop with ideas how to make scientific investigations and mathematical functions more exiting and understandable.

Ute Kaden (UAF) and Uwe Hoffmann (Denali BSD),

UAF & Denali BSD & Alaska Space Grant
3-5 6-8 9-12 *Preservice* Fri 10:15-11:00 Fri 11:05-11:50

1:00 – 1:45

Assessment Center and Skills

Alaska in the Secondary Classroom **Room 121**

Assessment Center and Skills Alaska in the Secondary Classroom What's all the hype about computer-based instruction? Come experience this hands-on session for secondary math and science teachers (grades 6-12). Learn about Assessment Center, an on-line, Standards-based Assessment web-site, and Skills Alaska, an interactive, web-based instructional program. Both provide for individualized instruction and formative assessment to help keep track of student progress. Come see these engaging programs in action!

Kathryn Horner and Mari Lammer, Nome Public Schools
6-8 9-12 *Fri 1:00-1:45*

Guide to the Permanent Fund and Its Publications **Room 318**

A guide to the history, investments and operations of the Permanent Fund, including the print and online publications of the APFC. These publications provide material than can be used in Alaska studies, personal finance and mathematics curricula.

Laura Achee, Alaska Permanent Fund Corporation
6-8 9-12 *Postsecondary Fri 11:05-11:50 Fri 1:00-1:45*

Mathematics Studio: Inquiry into Teaching Practices **Room 224**

Imagine a live classroom teaching study: classroom teachers and administrators collaborate to design a lesson and/or rehearsal of specific teaching practices. Resident teachers collect student discourse while the studio teacher enacts the plan; followed by a facilitated debrief. This session will overview the Studio, emphasizing promising practices for leveraging high-cognitive engagement by all K-12 math students, teachers, coaches, and administrators.

MurrelB Hoover, Teachers Development Group
3-5 6-8 9-12 *Postsecondary Special Education Administration Fri 1:00-1:45*

PolarTREC Teacher–Greenland! **Room 225**

The Teacher-Researcher experience directly supports science teaching in the classroom as well as builds background knowledge in content of polar sciences. Join me as I describe my experiences as a PolarTREC teacher on an expedition to Greenland at the NSF funded Summit Station. In addition to providing resources for elementary classrooms I will describe how the process works—applications, commitment, travel and possibilities for classroom connections to scientists and field researchers. PolarTREC has a tremendous amount of resources, web materials and connections to other teachers across the U.S. Becoming involved with the program puts you into contact with many other excellent science teachers K-12.

Jennifer Thompson, JSD/Einstein Fellowship/NSF/PolarTREC
K-2 3-5 6-8 9-12 *Fri 1:00-1:45*

Science for Scientists versus Science for Citizens: Two Views **Room 118**

This presentation will discuss the fine line between essential scientific knowledge, societal impacts, and deep academic pursuit.

Joel Curtis, National Weather Service
6-8 9-12 *Postsecondary Th 2:45-3:30 Fri 1:00-1:45*

Teacher Recognition Programs **Room 216**

What is the value in teacher recognition and award programs? What recognition programs exist for science and math teachers: Mat-Su teacher, Bob Williams, will share his candid view on his experiences as the Alaska 2009 Teacher of the Year and also as one of five national recipients for the 2010 NEA Horace Mann Teaching Excellence award. Other awards discussed include the BP Teacher of the Year, the PAEMST award, and the Milken award.
Bob Williams, Mat-Su Borough School District Fri 1:00-1:45

Western Science and Native Alaskan Tradition **Room 308**

The modern scientific method has proven to be an effective and powerful tool for understanding the world around us. Imbedded in the rich oral history of Alaska's First Peoples are scientific observations and discoveries. These allowed the people to make predictions about their world and ensure sustainable harvests. Teaching these to students is valuable on many different levels.

Aaron Baldwin, Juneau School District
K-2 3-5 6-8 9-12 *Postsecondary Th 1:00-1:45 Fri 1:00-1:45*

1:00 – 2:30

A Model of Inquiry – Force and Motion **Room 227**

My simple model of Inquiry will be applied to Force and Motion. Acceleration, Force and Circular motion will be investigated. Participants will learn strategies to turn almost any lesson into an Inquiry Based lesson.

Stu Schultz, Physics Pharm Consulting
6-8 9-12 *Special Education Fri 1:00-2:30*

Alaska Seas and Rivers for Grades 6-8 **Room 214**

Learn about the new free Alaska Seas and Rivers units of instruction for grades 6-8 Units promote inquiry and observation through investigation of the local aquatic environment. Investigations incorporate the use of writing and science notebooks, are aligned to Alaska standards and GLEs, and much, much more!

Joanna Hubbard, Eric Hart and Scott McKim, Alaska Sea Grant
6-8 *Fri 1:00-2:30*

Algebraic Thinking **Room 314**

Learn how to structure number sentences to develop an understanding of algebraic reasoning. This session is designed for 1st to 5th grade classrooms.

Kathy Obersinner and Greg Beck, Juneau
3-5 *Fri 1:00-2:30*

Demystifying 5th Grade Physical Science : Heat **Room 218**

This session will provide strategies for teaching an inquiry-based unit on heat. Participants will learn how to uncover student misconceptions about heat through formative assessment probes. Participants will gather data using infrared heat sensors as they explore concepts of heat transfer. Use of science notebooks and graphing will be integrated. Plan on an active session—you will be doing the science!

Elissa Borges, Juneau Douglas School District
3-5 *Fri 1:00-2:30*

Panel Session: Alaska's Workforce Demand and Careers for Math and Science Students

Library

Panel presentation by Alaska industry professionals about state-wide career opportunities and the connection to math and science education in preparation for those occupations. Panel: Todd Bergman, Executive Director, Alaska Process Industry Careers Consortium (APICC); Michele Brunner, Executive Director, Alaska Mineral and Energy Resource Education Fund (AMEREF); Meg Day, Human Resources Director, Kensington Gold Mine-Coeur Alaska; Michelle Zenger, Senior Human Resources Representative, Greens Creek Mining Company; Mary Rodman-Lopez, Apprenticeship Liaison, Alaska Department of Labor and Workforce Development; Emma Walton, Emma Walton and Associates; Grant Baker, Engineering, University of Alaska Anchorage.

Panel Facilitator: *Carin Smolin, Career and Technical Education Coordinator, Juneau School District* Fri 1:00-2:30

Formative Assessment: A Strategy for Student Learning

Room 206

When students think, they learn. Thinking is confirmed by student communication. Analyzing student communication, assessing what students know and how they know it, is called formative assessment. Using a framework for formative assessment and a lesson as an illustration, participants will learn how to develop skills for implementing formative assessment strategies in a mathematics classroom.

Jim Choike, Oklahoma State University
6-8 9-12 Postsecondary Preservice Special Education Administration Fri 1:00-2:30

How to Choose Manipulatives and Activities

Room 309

Manipulatives can be expensive so it is important to get the most out of them. What should a teacher consider when buying them? What about activities? Are some better than others? What makes an activity a good activity? Examples will be shared.

Dr. Virgil Fredenberg, University of Alaska Southeast
K-2 3-5 6-8 Fri 1:00-2:30

Integrating Math, Science and Culture using MCC Units

Room 123

Participants will be shown how Math in a cultural Context (MCC) units are used in a middle school inquiry based program to teach math and science GLEs as well as Cultural standards. Students will guide participants through hands on activities and showcase work. Units and projects from our 2nd/3rd grade "math buddy" classroom will also be shown.

Laurel Sands and Students, Dillingham City School District
3-5 6-8 Th 2:45-4:15 Fri 1:00-2:30

Integrating Technology into the Math Classroom

Room 200

Mathematics and Technology Infused Learning: this workshop explores how to integrate mathematics learning with digital content and tools through multiple ideas and models. Participants leave with multiple ideas and models for technology infused math lessons. Lesson development emphasize appropriate technology infusion techniques and skills with iWork, iLife, and the Mac OS.

Pete Vraspir, Apple Professional Development
9-12 Th 2:45-4:15 Fri 1:00-2:30

Revisit Squaring Off Surface Area with Technology

Room 310

Participants will construct boxes of different volumes from a given sheet of paper. Applying multiple representations and technology, students will make connections between algebra and geometry in finding the box with maximum volume. Participants will receive teacher perspectives of the lesson, TI-Navigator, Smart Notebook, and Geometer's Sketchpad files.

Teresa Hall, Fairbanks North Star Borough School District
9-12 Fri 1:00-2:30 Fri 2:45-4:15

Seabirds and Climate Change

Room 226

What can seabirds tell us about climate change in Alaska? This session is a new interactive, integrated science and mathematics program for secondary students. The Alaska Maritime National Wildlife Refuge has been studying seabirds across the Alaska coast for over three decades, and our long-term data set provides one example of how climate change is affecting our ocean ecosystem. The unit includes life sciences and earth sciences integrated with mathematics for use in secondary classrooms all over the state. Only real data is used in the program and field science processes are highlighted adding career education to the mix.

Lisa Matlock, U.S. Fish and Wildlife Service
6-8 9-12 Th 10:15-11:45 Fri 1:00-2:30

SOS: Science on a Sphere

Museum

Science On a Sphere (SOS)® is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating.

Alaska State Museum, Juneau
K-16 Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15
Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

Teaching Physical Science At The Secondary Level Through Inquiry

Room 202

Tips and tricks to cover Alaska State Standards in Physical Science Completely through inquiry. Turning your existing labs from recipes to investigations. Plus and introduction to some cool toys to make teaching the basics a little more fun.

Jonathan Smith, Juneau School District
6-8 9-12 Fri 1:00-2:30

The Alaska Career Information System—Hands On

Room 104

The Alaska Career Information System (AKCIS) provides students and adults with comprehensive career planning & exploration resources. This hands-on session will walk you through some of the interactive self assessment tools which match personal interests/skills with possible occupations, information on postsecondary training options throughout the US as well as financial aid resources. It will also cover some of the more than 600 classroom activities offered by AKCIS. Participants will use scenarios to understand how to better use AKCIS with their students.

CJ Allison, Alaska Commission on Postsecondary Education
6-8 9-12 Postsecondary Special Education Administration
Fri 1:00-2:30 Fri 2:45-4:15



Understanding Student Thinking

Room 122

How can students learn new information while they cling to their beliefs of how the world around them works? Using Assessment Probes are a great way to understand what your students are thinking.

*Linda Frame, Juneau School District
& Sidney Stephens, University of Alaska, Fairbanks
3-5 6-8 Administration*

Fri 1:00-2:30

Yup'ik Science

Museum

The Yup'ik people have no word for science, yet their tools were so well designed that they allowed the Yupiit to live in a land no one else would inhabit. The exhibition Yuungnaqpiallerput/The Way We Genuinely Live: Masterworks of Yup'ik Science and Survival presents remarkable 19th and 20th century tools, containers, weapons, watercraft, and clothing in an exploration of the scientific principles and processes that have allowed the Yup'ik people to survive in the sub-arctic tundra of the Bering Sea coast.

Alaska State Museum, Juneau

*K-16 Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15
Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15*

1:00 – 4:15

Aliens in YOUR Classroom! (Alien Plants, that is.)

Room 228

Invasive plants pose an increasing threat to Alaska's ecosystems. Help halt their spread by teaching about invasive plants in your classroom. An introduction to invasive plants of Alaska will be presented by Katie Villano, ecologist, and Christine Villano, teacher, including lessons from their newly developed WEED WACKERS: A K-6 Educators Guide to Invasive Plants of Alaska.

Christine Villano and Katie Villano Spellman, FNSBSD

K-2 3-5 6-8 Preservice Administration Fri 1:00-4:15

Cognitively Guided Instruction

Room 316

The purpose of this workshop is to increase your understanding of children's intuitive mathematical thinking and to use that to help your students learn mathematics with understanding. We will analyze students' mathematical strategies, examine various problem types for the teacher to impose, and discuss how to differentiate and pose questions that will move a child up to a higher level of problem-solving. Highly recommended for K-3 and useful for 4th & 5th.

Pamela Garcia, Juneau School District

K-2 3-5 Fri 1:00-4:15

May The Force Be With You, aka Adopt a Magnetometer

Room 320

The Sun's magnetic field affects the Earth's magnetic field. The Sun's magnetic field is not constant. Participate in a great activity mapping magnetic fields. This activity models something that is real but that cannot be seen. Learn how your students can use real data to detect changes in the Sun's output and the Earth's magnetic field.

*Victor Trautman, Laura Peticolas, Judith Onslow, TexasGail Raymond,, Petersburg High School and Anchorage School District
6-8 9-12 Postsecondary Preservice Administration*

Fri 1:00-4:15

New Chemistry Program— A Natural Approach

Room 302

Dr. Tom Hsu's A Natural Approach To Chemistry. Join us for selected laboratory activities from author Tom Hsu's new high-school book, A Natural Approach to Chemistry. Selected lab activities will feature an innovative new probe system that measures temp. and pH by colorimetry, and by voltage for electro-chemistry, The unit also includes a spectrophotometer. If you have been looking for a way to help all students experience chemistry, in and out of the laboratory, don't miss this one.

*David Ziegler, Chemistry Teacher, Lab-Aids
9-12*

Fri 1:00-4:15

SMART Content Development for your Math and Science Classroom

Room 321

Discover techniques and skill to insure that the science and math content you are developing is accessible to your 21st century students. Instructional and functional design techniques will be discussed and used to demonstrate the power of conscious content development. Implementing best practices for creating effective digital content does make a difference.

Jaimie Ashton, SMART Technologies

K-2 3-5 6-8 9-12 Postsecondary

Preservice Special Education Administration

Fri 1:00-4:15

1:50 – 2:35

NSTA Resources You Can Access

Room 102

Join us for a quick tour of NSTA's Classroom and Professional Development resources, all accessible through the web. Following the tour will be time to discover the resources that best fit your needs.

Craig Gabler, NSTA

K-2 3-5 6-8 9-12 Preservice Administration

Fri 1:50-2:35 Fri 2:45-3:30

Plastics in our Environment

Room 230

Join Turning the Tides, a grassroots organization based in Juneau to discuss the impact that plastics have on our marine systems. Gain a greater understanding of the permanency of plastics, how plastics enter our waterways, reducing plastic usage and classroom tips.

Anji Gallanos, MEd and Andrea Doll, Turning the Tides

K-2 3-5

Fri 1:50-2:35

The Amazing Shifting Theorem

Room 323

In this session, we will reveal the main theorem underlying the patterns discovered in the Fibonacci presentation on Thursday. We will also give two different proofs of the theorem.

Jill Dumesnil & Andrzej Piotrowski, University of Alaska Southeast

6-8 9-12 Postsecondary

Fri 1:50-2:35

Sessions—Friday, October 16



Understanding by Design—Backwards Design in your Classroom

Room 307

Understanding by Design—Backwards design in your Biology classroom to determine desirable student outcomes and then plan your instruction to ensure students meet this goal.

Scott Skene, Pearson Prentice Hall
9-12

Fri 1:50-2:35 Fri 2:45-3:30

Using Fire—Amazing Inquiry Science

Room 120

Participants will enjoy conducting an inquiry based FIRELAB from Fire in Alaska—Testing the Fire Triangle. Attendees will also experience other fire lessons and an orientation to the other popular DNR education programs including the newest one: Alaska's Boreal Forest.

Matt Weaver, Alaska DNR
3-5 6-8 9-12

Th 3:35-4:20 Fri 1:50-2:35

2:45 – 3:30

Bridging Multiple Language & Literacy Levels in Science Room 218

Do your students cover a wide range of language and ability levels? Do you spend hours figuring out how to differentiate instruction in order to meet their individual needs? Join this session and learn hands-on strategies designed to maximize engagement – and results – in your multi-level science classroom. Take away great ideas and exciting free resources to bring the strategies to life!

Debra Hopkins, National Geographic School Publishing
K-2 3-5 6-8

Fri 2:45-3:30

How Can I Get Them To Remember Everything?

Room 314

Techniques and materials will be explored that help students move learning into long-term memory and develop easier access to learning.

Lynn Williams, Juneau School District
K-2 3-5 6-8 9-12

Fri 2:45-3:30

National Science Foundation: Research into Practice

Room 225

Education Programs, grants, research experiences and other opportunities for teachers... how all these experiences inform classroom practice.

Jennifer Thompson, 2008-09 Einstein Fellowship - NSF/2009-10
JSD

K-2 3-5 6-8 9-12

Fri 2:45-3:30

NSTA Resources You Can Access

Room 102

Join us for a quick tour of NSTA's Classroom and Professional Development resources, all accessible through the web. Following the tour will be time to discover the resources that best fit your needs.

Craig Gabler, NSTA

K-2 3-5 6-8 9-12 Preservice Administration

Fri 1:50-2:35 Fri 2:45-3:30

Understanding by Design—Backwards Design in your Classroom

Room 307

Understanding by Design—Backwards design in your Biology classroom to determine desirable student outcomes and then plan your instruction to ensure students meet this goal.

Scott Skene, Pearson Prentice Hall
9-12

Fri 1:50-2:35 Fri 2:45-3:30

What Can I Do About It? Volunteer Opportunities for Students

Room 100

I will speak about my experiences in high school getting interested in science and the environment, involved in the community and then planning a year off before college to volunteer on issues pertaining to the environment. In October I will have just finished up a 3 month internship with the USFWS Anchorage office, doing research in the backcountry.

Liz Iandoli-Miner, US FWS and the Student Conservation Assoc.

6-8 9-12 Postsecondary Preservice Special Education
Administration Teachers!

Fri 2:45-3:30

2:45 – 4:15

A Culturally Relevant Math Program that Works: MCC

Room 123

This hands-on workshop will provide participants with concrete and challenging culturally relevant math teaching. We will show how math and culture connect. For example, how to use Alaska Native knowledge to teach fractions. Data will show that Math in a Cultural Context is an effective program.

Jerry Lipka; Dora Andrew-Ihrke; Nicolle Gilsdorf, Math in a Cultural Context, University of Alaska Fairbanks

3-5 6-8 Preservice Administration Th 1:00-2:30 Fri 2:45-4:15

Alaska Biogeography: Plants and their Symbionts

Room 226

This session will discuss the basic ecological concepts of phenology, invasive plants, and nitrogen fixation using plant-symbiont relationships and mycorrhizae as a unifying theme, and discuss the lesson plans and experiments that educators can implement in their own classrooms. Our goal is to get as many 7-12 Alaska science teachers as possible to implement field research and data sharing throughout the state.

Ruth Knight and Alina Cushing, EPSCoR (UAF/UAS)

6-8 9-12

Th 1:00-2:30 Fri 2:45-4:15

Astrobiology II, An investigation of Gravity

Room 120

Use a gravity simulation game to explore the physics of planetary motion. Resources, activities, and inquiry lessons from NASA, the SETI Institute and National Astrobiology Institute will be shared.

Debbie Soltis, Anchorage

6-8 9-12 Special Education

Fri 2:45-4:15



Curriculum Topic Study

Learn about using Curriculum Topic Study in many ways: a powerful method for teachers to learn more about students' misconceptions and instructional considerations related to national curriculum standards, benchmarks and research. Learn how to use CTS to support strong formative assessment and examine student work. *Trisha Herminghaus and Joanna Hubbard, Anchorage School District*

K-2 3-5 6-8 9-12

Room 214

Fri 2:45-4:15

Increasing Student Success with Geometry Nspired

Come learn about Geometry Nspired. Geometry Nspired focuses on helping students explore and investigate key principles in Geometry using technology as a learning tool. In this hands-on session, participants will learn about the Action/Consequence/Reflection lessons that are an integral part of the TI-NspiredT classroom. We will explore the activities and resources that are part of the Geometry Nspired program. Every participant will receive free tutorials, software and activities - a \$125 value. *Melody DeRosa, Texas Instruments*

9-12

Room 308

Fri 2:45-4:15

Inquiry Science Using STC/MS

Discover the world of inquiry with hands-on activities from STC/MS with a brief overview of the STC/MS curriculum at the beginning of this session. Science and Technology Concepts for Middle Schools was developed by the NSRC and is published and distributed exclusively by Carolina Biological Supply Company. *Mary Hausler, Juneau School District*

6-8

Room 227

Fri 2:45-4:15

Integrating Technology into the Math Classroom

Mathematics and Technology Infused Learning: this workshop explores how to integrate mathematics learning with digital content and tools through multiple ideas and models. Participants leave with multiple ideas and models for technology infused math lessons. Lesson development emphasize appropriate technology infusion techniques and skills with iWork, iLife, and the Mac OS. *Pete Vraspir, Apple Professional Development*

6-8

Room 200

Th 1:00-2:30 Fri 2:45-4:15

Revisit Squaring Off Surface Area with Technology

Participants will construct boxes of different volumes from a given sheet of paper. Applying multiple representations and technology, students will make connections between algebra and geometry in finding the box with maximum volume. Participants will receive teacher perspectives of the lesson, TI-Navigator, Smart Notebook, and Geometer's Sketchpad files. *Teresa Hall, Fairbanks North Star Borough School District*

9-12

Room 310

Fri 1:00-2:30 Fri 2:45-4:15

SEPUP Life, Earth and Physical Issues

This session's focus will be on the Issues in the SEPUP Middle School Courses/Units. As an example participants will be utilizing our signature Mini Stream Tables and Topography models to collect data as to where to build a house. Handouts will include teacher and student pages from SEPUP Issues. This will be a highly interactive, collaborative session modeling the SEPUP approach to learning in a science classroom. All materials and handouts will be provided. *Mark Koker, Lab-Aids, Inc*

6-8

Room 300

Th 1:00-2:30 Fri 2:45-4:15

SOS: Science on a Sphere

Science On a Sphere (SOS)® is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating. *Alaska State Museum, Juneau*

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15
Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

Museum

The Alaska Career

Information System—Hands On

The Alaska Career Information System (AKCIS) provides students and adults with comprehensive career planning & exploration resources. This hands-on session will walk you through some of the interactive self assessment tools which match personal interests/skills with possible occupations, information on postsecondary training options throughout the US as well as financial aid resources. It will also cover some of the more than 600 classroom activities offered by AKCIS. Participants will use scenarios to understand how to better use AKCIS with their students. *CJ Allison, Alaska Commission on Postsecondary Education*

6-8 9-12 Postsecondary Special Education Administration

Fri 1:00-2:30 Fri 2:45-4:15

Room 104

The Measurement of Length, Volume, and Time (K-6)

Measurement of length, volume, and time requires (a) transitive reasoning and (b) unit iteration, which needs to develop out of transitive reasoning. These abilities to reason logically will be explained, and educational implications will be discussed. *Constance Kamii, University of Alabama at Birmingham*

K-2 3-5

Room 116

Fri 2:45-4:15

Sessions—Friday, October 16



Yup'ik Science

The Yup'ik people have no word for science, yet their tools were so well designed that they allowed the Yupiit to live in a land no one else would inhabit. The exhibition Yuungnaqpiallerput/ The Way We Genuinely Live: Masterworks of Yup'ik Science and Survival presents remarkable 19th and 20th century tools, containers, weapons, watercraft, and clothing in an exploration of the scientific principles and processes that have allowed the Yup'ik people to survive in the sub-arctic tundra of the Bering Sea coast.

Alaska State Museum, Juneau

K-16

Th 10:15-11:45 Th 1:00-2:30 Th 2:45-4:15

Fri 10:15-11:45 Fri 1:00-2:30 Fri 2:45-4:15

Museum

Native Ways and Modern Science— Everything is Connected

Room 224

Former JDHS oceanography teacher Clay Good previews an on-line course he is developing for the ASDN. He will introduce teachers to using Teachers Domain, Google Earth, and other on-line resources to help create more culturally relevant learning for Alaska science students.

Clay Good, Alaska Staff Development Network (ASDN)

6-8 9-12 Preservice

Fri 11:05-11:50 Fri 3:35-4:20

Professor Fredenberg's Marvelous Math Facts Room 118

Reorganizing the Facts tables can lead to many activities connecting math concepts. Come and explore.

Professor Fredenberg, UAS

3-5 6-8

Th 1:00-1:45 Fri 3:35-4:20

3:35 – 4:20

Inquiry Science Online:

Is It for Everyone?

Room 121

Inquiry science is practiced in classrooms, on playgrounds and in the great outdoors throughout the world. The hands-on/minds-on nature of these experiences excite students about making observations, data collection, data interpretation and sharing their findings. Can inquiry science be experienced online? Where can online activities be found? How can teachers continue to excite students about doing science on their own and online? Learn the answers to these questions while experiencing inquiry science online.

Ted Munsch, Alaska Pacific University

3-5 6-8 9-12

Th 1:00-1:45 Fri 3:35-4:20

Introducing Math Concepts Through Music

Room 216

Here is a way to engage your students with math concepts through music.

Patrick Murphy, Juneau School District

K-2 3-5

Fri 3:35-4:20

“Spurring” Your Student into Volcanology:

Volcanic Effects

Room 206

This NASA Mission Geography lesson focus on volcanoes and geography by utilizing Alaskan Volcano data. Participants learn how NASA satellites were used to monitor Mount Spurr and gather different types of data. Participants compare data from a Space Shuttle photograph and satellite data to determine effects of eruptions on Alaska's atmosphere.

Brian Hawkins, NASA Education

6-8

Th 10:15-11:00 Fri 3:35-4:20

The Future is Now: Aviation

& Aerospace Careers

Room 318

The Future is Now for any young person who is not afraid to step boldly into challenging and new careers. Aviation and Aerospace are great tools for teaching STEM subjects.

Angie Slingluff, Federal Aviation Administration

3-5 6-8 9-12 Postsecondary Careers

Fri 3:35-4:20



9:00 – 12:00

Leading Through Change

Room 206

Come have some fun by being part of a simulation where you learn more about the change process in education. Participants will come away with an understanding of the research behind change, the factors that influence change, and their role as a leader of change.

*Samantha Wuttig and Bob Williams, Alaska Math Consortium
K-2 3-5 6-8 9-12 Postsecondary Administration*

Sat 9:00-12:00

Materials World Modules—Composites

Room 200

Bring Inquiry and Design to your classroom! Learn about the Composites Module through a series of hands-on, inquiry-based activities. Then apply what you have learned to design a prototype-fishing pole that is both strong and flexible. Teachers will be provided with a classroom set of student guides and the composite kit.

*Stu Schultz, Physics Pharm Consulting
6-8 9-12 Special Education*

Sat 9:00-12:00

Number Powerhouse -> From Zero to One and Beyond

Room 214

Utilize a variety of games, fun activities and unique strategies to compare, estimate and develop the relationships among fractions, decimals and percents. Construct manipulatives to introduce addition and subtraction of fractions and make geometric connections by using area models for multiplication and division of fractions. Participate in a magic squares exercise designed to bring fraction sense to a higher level.

*Donna Davis, Glencoe/McGraw-Hill
6-8*

Sat 9:00-12:00

Replacing Thingamajig In Math-Language For Success

Room 218

This session will introduce teachers to the Developmental Language Process designed to instill academic language into the long term memories of the students. This process increases comprehension in listening and reading and creative expression in speaking and writing through motivating activities and natural process of language learning.

Jim MacDiarmid, Sealaska Heritage Institute

*K-2 3-5 6-8 9-12 Postsecondary Preservice Special Education Administration
Th 1:00-4:15 Sat 9:00-12:00*

Science Notebooks—Developing Deeper Understanding

Library

This session for teachers, administrators, and professional developers is based on the work of El Centro and Alaska school districts over the last 10 years. This course blends inquiry and science notebooks while modeling formats for student investigations, recording observations, and inviting thinking and discourse around evidence. Participants will experience an in-depth investigation into science notebooks, as well as a variety of science notebook strategies. The strategies modeled here include self-assessment and ideas for getting started, structuring science lessons, encouraging scientific discourse, examining student work, and summarizing conceptual understanding.

Joanna Hubbard, Trisha Herminghaus, Judy Onslow, and Texas Gail Raymond, Anchorage School District

Sat 9:00-12:00

Field Trips—Saturday, October 17



Sign up for field trips at the registration desk by Thursday at 4:00 pm. The cost is \$20 and will include transportation and a sack lunch. All field trips will depart from the Juneau Douglas High School parking lot at 9:00 am and return at 1:00 pm. There will be a 3 pm return for Douglas Island Adventure.

Backyard Glacier – Mendenhall Glacier Visitor Center

Elementary

Backyard Glacier is a multidisciplinary program that familiarizes students with local geological changes and natural and cultural histories of their community. All activities are correlated to Alaska State Standards in Science, Mathematics, English, Art, Social Studies, and History. Agency scientists often assist with lesson delivery during on-site sessions, exposing students to a variety of career options (fisheries biologist, landscape architect, archeologist, etc).

This field trip will offer participants an opportunity to experience each activity used in the program, much like students would do during their trips to the Visitor Center. After visiting the various stations, we will reconvene to discuss how the program and activities could be adapted to suit a variety of sites. Self-paced outdoor and exhibit exploration will also be available. "Ready to use" lesson plans will be distributed.

Climate Change in Your Own Backyard

Middle and High School

Join Kathleen Galau, a teacher from Thunder Mountain High School and Ivy Smith, UAS Environmental Science Program student, as they travel to the Mendenhall Glacier where they will take participants on a hike along the Moraine Ecology Trail and the Trail of Time. Participants will collect data using UAS Garmin GPS receivers to collect glacier feature data. The teacher collected data and data provided by UAS Environmental Science student researchers will be later plotted on historic maps using GIS laptops in the Visitor Center. Teachers will compare 2009 data with features formed over the last half century using USGS maps from 1948, 1975, and 1986, as well as GOOGLE Earth.

Douglas Island Adventure

Explore Douglas Island with Discovery Southeast, a local organization dedicated to hands-on nature education and science-based inquiry. How does a small city owned ski area plan and engineer a new ski lift? How did the early miners power stamp mills through hydroelectricity? And how do past and modern mining and recreation activities affect watersheds, fish habitats and natural history? Visits to Eaglecrest Ski Area and the Treadwell Mine Historic Trail, as well as other stops, will be the places of inquiry on this field trip.

Two Juneau Favorites:

DIPAC Fish Hatchery and Alaskan Brewery

First Stop: DIPAC

First start with a tour of the Macaulay Salmon Hatchery operated by Douglas Island Pink & Chum, Inc. (DIPAC), a privately owned Alaskan non-profit salmon culture facility. Public education is an important part of the mission to promote understanding of Alaska's salmon resources and fisheries. This tour will focus on DIPAC's school outreach programs for salmon and marine biol-

ogy. Participants will also have an opportunity to view the popular educational displays and marine aquariums in the hatchery's visitor center.

Next Stop: The Science of Brewing

Take a behind the scenes tour of the Alaskan Brewery, led by brewer Dave Wilson. Dave has a B.S. degree in Biochemistry and a Master's in Food Science and will talk about the science of making beer as he describes the equipment and facilities. Participants will have an opportunity to taste the different varieties of Alaskan beer, and to visit the gift shop at the end of the field trip.

Climate and Weather from Two Perspectives

Join UAF Scientist Kenji Yoshikawa for a hands-on trip to learn about the statewide project Permafrost/Active Layer Monitoring Program. Help to install a frost tube and find out how you and your students can get involved in your own area.

This is an ongoing project to establish long-term permafrost, active layer monitoring, and seasonal frost layer monitoring sites adjacent to schools in Alaska and in the circumpolar permafrost region. Currently, there are 148 schools in Alaska involved in this project. The monitoring sites collect temperature data on permafrost and the length and depth of the active layer or seasonal frost layer. Changes in climate, length of seasons, and permafrost conditions directly impact natural resources and subsistence activities in Alaskan communities.

Next, confirm your observations with a trip inside the National Weather Service Forecast Office. A meteorologist will guide you through the forecast operations center, explain the process of weather forecasting, demonstrate the tools forecasters use to analyze, diagnose, and predict our dynamic atmosphere and the resultant weather. Learn about classroom resources available pertaining to weather and climate and come prepared to have your own observation and prediction skills tested!

A Big Thank You

goes to the following organizations for their contributions in making the Field Trips possible!

Alaskan Brewing Company

Discovery Southeast

Douglas Island Pink and Chum

Mendenhall Glacier Visitor Center

National Weather Service

Southeast Alaska Guidance Association

Co-Chairs	Bev Smith Linda Frame
Registration	Sharon Early
Program	Sue Baxter Pam Garcia
Hospitality	Janet Henderson
Exhibits	Lynn Williams
Saturday Field Trips	Stephanie Hoag Kristen Romanoff Beth Weigel
Keynote Speakers and Guests	Emma Walton
Treasurer	Ted Munsch
ACTM Website	Eric Lowry
Technology	John Wahl Barb Kreher
Publicity Merchandise	Bobbi Jordan Christine Hess
Graphics	Matt Knutson
Program Booklet	Alenita Danner

We would also like to thank the staff of Juneau-Douglas High School for their cooperation and help in making this conference possible.

Conference Planning Grid



Thursday, October 15, 2009

Session	Title - First Choice	Location	Title - Second Choice	Location
Keynote 8:30-10:00am	Larry LeDoux - Opening Ken Wesson - Keynote	JDHS Auditorium		
Session 10:15-11:00am				
Session 10:15-11:45am				
Session 11:05-11:50am				
Lunch 11:50am-1:00pm				
Session 1:00-1:45pm				
Session 1:00-2:30pm				
Session 1:50-2:35pm				
Break 2:30-2:45pm				
Session 2:45-3:30pm				
Session 2:45-4:15pm				
Session 3:35-4:20pm				

Friday, October 16, 2009

Session	Title - First Choice	Location	Title - Second Choice	Location
Keynote 8:30-10:00am	Bob Williams - Opening David Gallo - Keynote	JDHS Auditorium		
Session 10:15-11:00am				
Session 10:15-11:45am				
Session 11:05-11:50am				
Lunch 11:50am-1:00pm				
Session 1:00-1:45pm				
Session 1:00-2:30pm				
Session 1:50-2:35pm				
Break 2:30-2:45pm				
Session 2:45-3:30pm				
Session 2:45-4:15pm				
Session 2:45-4:15pm				

Saturday, October 17, 2009

Session	Title - First Choice	Location	Title - Second Choice	Location
Field Trips 9:00am-1:00pm				
Extended Sessions 9:00am-Noon				

Index of Presenters



Achee, Laura
Allen, Laura
Allison, Christiane J.
Andrew-Ihrke, Dora
Bailey, Brian
Baldwin, Aaron
Barnhardt, Ray
Bass, Ricky
Beck, Greg
Bentz, Tennie
Borges, Elissa
Brown, Misty
Brown, Patricia
Burns, Patty
Casper, Kyle
Chester, Hans
Choike, James
Collman, Ben
Cologie, Carol
Curtis, Joel
Cushing, Alina
Davis, Donna
DeRosa, Melody
Dick, Alan
Doll, Andrea
Dorsey, Ryan
Dumesnil, Jill
Eckland, Cherry
Edwards, RaeAnn
Engblom-Bradley, Claudette
Fenno, Mare
Frame, Linda
Fredenberg, Virgil
Gabler, Craig
Galau, Kathleen
Gallanos, Anji
Gallo, David
Garcia, Pamela
Gieser, Jeremy
Gilsdorf, Nicolle
Good, Clay
Granata, Jim
Green, James
Grimm, Dana
Hall, Teresa
Hart, Eric
Hausler, Mary
Hawkins, Brian

Herminghaus, Trisha
Hoffmann, Uwe
Hoover, Murrel
Hopkins, Debra
Horner, Kathryn
Hubbard, Joanna
Johnson, Diane
Jones, Anne
Jones, David
Judd, Kevin
Kaden, Ute
Kamii, Constance
Kearney, Maeghan
Klentschy, Michael
Knight, Ruth
Koker, Mark
Kopplin, Martha Robus
Lammer, Mari
LeDoux, Larry
Lehnhart, Nancy
Lipka, Jerry
MacDiarmid, Jim
Mahre, Karen
Mall, Alison
Mapes, Craig
Maran, Stephen P.
Matlock, Lisa
McDonald, Patricia
McKim, Scott
McMillan, Chip
Metsa, Joyce
Miner, Liz
Mitchell, Barb
Moore, Dustin
Munsch, Ted
Murphy, Patrick
Nixon, Gayle
Obersinner, Kathy
O'Brien, Mark
Onslow, Judith
Parks, Rebecca
Pasteris, Tina
Peek, Millie
Peel, Wendy
Peticolas, Laura
Pfeiffer, Dr. David
Piotrowski, Andrzej
Randles, Pam

Raymond, Texas Gail
Reid, Virginia
Rodriguez, Adriana
Romanoff, Kristen
Sands, Laurel
Savikko, Paula
Schultz, Stu
Shane, Pat
Sigman, Marilyn
Skene, Scott
Slaven, Terry
Slingluff, Angie
Smith, Allison
Smith, Ivy
Smith, Jonathan
Smolin, Carin
Soder, Jessie
Soltis, Debbie
Sparrow, Elena B.
Squibb, Linda
Steiner, Kellie
Stephens, Sidney
Stone, David
Thomas, Chris
Thomas, Dana
Thompson, Jennifer
Trautman, Victor
Villano, Christine
Villano Spellman, Katie
Vraspir, Pete
Wahl, John
Walker, Mimi
Warren, Michael
Weaver, Matt
Webb, Tammie
Weigel, Beth
Wessels, Carmen
Wesson, Ken
Williams, Bob
Williams, Lynn
Wilson, Dave
Wimer, Tanya
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Glencoe, Macmillan, SRA, Wright Group and
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Notes

