2014 FALL SCIENCE UPDATE CONFERENCE REGISTRATION FORM

Dear Educator,

The Regional Math and Science Center cordially invites you to the 30th annual Fall Science Update. This year’s theme is “Celebrating Science Education: Past, Present, Future.” The conference will take place Wednesday, November 19, 2014, from 8:00 a.m. to 3:00 p.m. at the Eberhard Center on Grand Valley State University’s Grand Rapids Pew Campus.

Our keynote speaker is the notable Larry Fegel. His talk for both elementary and secondary teachers will highlight many excellent examples of strategies and possibilities within science education.

Recently retired from Grand Valley State University’s Geology Department, Larry Fegel is dedicated and passionate about science education. Known for his high standards and excellent teaching, his career has spanned over forty years in K-12 education. Graduating from Grand Valley State University with degrees in earth science, biology, and education, he also earned his Master of Science in Fishes and Wildlife from MSU. His interest in teaching as a vocation began as an intern at Stanford Nature Center and the National Audubon Society, where his awareness of environmental education grew. He spent subsequent years teaching in the Grand Rapids Public School system as an elementary and secondary teacher, Director of Outdoor Education and Science Curriculum, and Assistant Superintendent for Teaching and Learning for West Ottawa Public School District.

Additionally, Fall Science Update will hold five 60-minute breakout sessions on various science topics, pedagogy, and a luncheon. The sessions will provide content information on teaching strategies for K-12 teachers in biology, chemistry, earth science, environmental science, geology, physical science, and engineering. Some sessions will feature best practices teaching techniques as well as technology tools for the classroom. Once again, you will be able to register online or by mail for the event sessions.

Whether you are a new or returning teacher, this conference promises to be an informative and relaxing day where you can take time to explore new trends and ideas in education. As always, this will be a day of learning and connecting with colleagues. We look forward to your participation. Please call (616) 331-2267 for more information.

Sincerely,

Margo DeVoe
Program Director
Regional Math and Science Center

Karen Myers
Director
Regional Math and Science Center

October, 2014

#2014 FALL SCIENCE UPDATE
A CONFERENCE FOR K-12 EDUCATORS

"CELEBRATING SCIENCE EDUCATION: PAST, PRESENT, FUTURE"

NOVEMBER 19, 2014
Grand Valley State University
L.V. Eberhard Center
Robert C. Pew Grand Rapids Campus
Downtown Grand Rapids
Wednesday, 8 a.m. – 3 p.m.
SESSION A: 8:30-9:30 am

A1 Using the Achieve EQuIP Rubric to Evaluate Lessons and Units to Meet the Requirements of the Next Generation Science Standards
Jan Amundson, Kent Intermediate School District
In this session participants will be introduced to the EQuIP Rubric. Participants will hear stories of how the rubric has helped the NGSSB-NSTA Curators, and also practice using the EQuIP rubric. Grades K – 12

A2 Citizen Science
Joy Funk, Outdoor Discovery Center Macatawa Greenway
Use citizen science in your classroom to get students involved in real life environmental issues. Teach them that they can make an impact on the world around them right now! Grades K – 12

A3 Science “M&AS” (Math & Science)
Sonia Patmon and Amanda Hicks, Gladis-Lee Public Schools
Come experience a variety of activities integrating math and science. Leave with ready to use materials you can easily adopt to fit into your classroom. Grades 4 – 7

A4 Leveraging Community Partnerships in Place-based Education
Kristine Bersche, West Michigan Environmental Action Council
Leveraging community partnerships in platted-based education. This inquiry based prelady/preview simulation addresses documented evolutionary misconceptions and is aligned with the NGSS. Detailed E lesson plan provided. Grades 3 – 12

A5 Spark & Beans: Addressing Evolutionary Misconceptions
Christopher Dobson, GVSU Biology Department
This inquiry based predator/prey simulation addresses documented evolutionary misconceptions and is aligned with the NGSS. Detailed E lesson plan provided. Grades 5 – 12

A6 Community Resources as Inspiration for Inquiry-Based Projects
Sonna Pohlson and Amanda Hicks, Godfrey-Lee Public Schools
Hope College teacher programs provide innovative, inquiry-based projects focusing on local dudes, watersheds, and other community resources to inspire students. Participants have access to equipment for use in classrooms. Grades 6 – 12

A7 How Tyrannosaurus rex Got it’s Big Bite and Other Tales About Why Size and Timing Matters
Garry Stinger, Kent Intermediate School District
This session is an exploration of allometry (size-dependent in development) that is the basis for a substantial amount of ecologically and evolutionarily important variation in plants and animals. Grades 9 – 16

SESSION B: 9:45-10:45 am

B1 KEYNOTE for Elementary Teachers (K-6)
A Celebration and Exploration of Quality Science Education: Why Teach Elementary Science?
Larry Fegel, GVSU Geology Department
Keynote speaker, Larry Fegel, will discuss and guide questions about the teaching of elementary science over the years. What has been the norm for science education? Why is science instruction a vital part of the elementary curriculum? What does good science instruction look like? How do we maintain the standards in your classroom? We will talk about the role of “standards” in our curriculum.
Come to explore why we teach science. We will discuss current practices and hurdles, as well as predict what the future may hold. Grades K – 6

B2 Interactive Science
Craig Steenstra, Kent Intermediate School District
Come to this session to explore tech-based tools and ideas that can be used to get students to interact with science and each other in various ways.
Grades 6 – 12

B3 Meeting State Standards for New Engineering Design Software
Rick Mulhun and Ebiri Nkugba, Kent Intermediate School District
This session offers an overview of free engineering software and lessons aligned to state standards. Demonstrations include software from Autodesk and ESRI’s ArcGIS online spatial analysis software.
Grades 8 – 12

B4 Chemistry Activities Using Household Chemicals
DeAnna Cullen, Wheatfield High School
Participants will have the choice to try some chemistry activities that use household chemicals and even materials that you may have at home. These NGSS aligned activities will include topics like thermodynamics, salinity, equilibrium, acid/base and more.
Grades 9 – 12

B5 Introducing High School Students to Advanced Instrumentation: An Opportunity to Partner with Grand Rapids Community College
Jennifer Botten, GRCC Physical Science Department
GRCC is home to dynamic science faculty and interesting equipment used in scientific investigations. We will explore a large group of laboratory tools that will enable students to conduct experiments that use scientific instrumentation at GRCC. Options and ideas for onsite lab experiments will be presented.
Grades 9 – 12

B6 Inspiring STEM Through Engineering in the High School Classroom
Susan Ipr Brown and Erin Mann, Hope College
Engineering design projects complement math and science instruction for all ability levels. Hope College brings teachers together with students for engineering workshops and provides materials to continue projects in class.
Grades 9 – 12

SESSION C: 11:00 am–12:00 pm

C1 Exploring Your Vision for Science Education
Mary Plotz, GVSU Science Education Specialist
What have we learned from past and present science opportunities? What has been the norm for science education? What is science instruction a vital part of the elementary curriculum? What does good science instruction look like? How do we maintain the standards in your classroom? We will talk about the role of “standards” in our curriculum.
Grades K – 12

C2 Environmental Education: Networks & Partners
Thomas Ochspunt, Michigan Department of Environmental Quality
If you’re not currently doing so, you haven’t talked to a child lately. Students and teachers are facing a new world challenge. There is a way forward to help us emerge stronger than ever. Grades K – 12

C3 Student-led Environmental Stewardship MS-LS2
Jenna Stahl and Jessie Shulte, Brethren Nature Center
Mary Lempowski, CA Frost Environmental Academy
Participants will be equipped with best practices in student-led environmental stewardship projects and tools needed to provide support of inquiry, rigor, and relevance to capitalize on key NGSS components.
Grades 3 – 8

C4 NASA: Using Challenges to Teach Force and Motion to Inquiring Minds
Susan Kohler, NASA Education Specialist
 Inquiry-based lessons around real-world engineering challenges will encourage students and ignite their curiosity. The Engineering Design Challenge, incorporating teaching strategies, will be introduced. This session is one of a two-part series. Registering for both sessions is recommended, but optional (note session E2).
Grades 3 – 8

C5 Air Quality
Janet York, GVSU Amis Water Resources Institute
Engage your students in tracking air quality in west Michigan. Real-time online resources help them relate to Clean Air Action Days to predicted local weather conditions. Participants will receive a resource CD with activities.
Grades 6 – 12

C6 STEM in Transportation
Ebiri Nkugba, Kent Intermediate School District
Attendees will be introduced to STEM content-area applications in the transportation industry with a focus on ground and air transportation. Lesson ideas and resources available for classroom teachers will be shared.
Grades 6 – 12

SESSION LUNCH: 12:00-12:45 pm

Enjoy conversation with your colleagues over lunch. Pick up a box lunch served from the 2nd floor east lobby. Session rooms are available for dining.

SESSION D: 12:45-1:45 pm

D1 KEYNOTE for Secondary Teachers (7-12)
A Celebration and Exploration of Quality Science Education: Why Do We Teach Science?
Larry Fegel, GVSU Geology Department
Keynote speaker, Larry Fegel, will discuss and guide questions about the teaching of secondary science. What is the purpose of teaching the science of our present and past 4th graders? We will identify the accepted “norms” for science education as well as recognize quality teaching and learning. Current practices and hurdles as well as predictions for the future will be discussed.
Secondary teachers will be using an “unknown” to discover the interdependency of Earth’s systems and will leave this session with a deeper understanding of what a science-literate person needs to know.
Grades 7 – 12

D2 Thinking, Acting and Writing Like Scientists: First Grade Investigators Explore the Causes and Effects of Sounds and Vibrations
Koby Cramer, Michigan Science Teachers Association
This new hands-on session will demonstrate how children can combine what they know about sound and vibrations in order to explore the cause and effect of sound and vibrations.
Grades K – 12

D3 Forestland Ecology, Conservation, and Indigenous People: Lessons for a Changing Climate
Christopher Shaffer and Gnn修身, GVSU Anthropology Department
This session will demonstrate how children can combine what they know about sound and vibrations in order to explore the cause and effect of sound and vibrations.
Grades K – 12

D4 Unpackaging and Moving to NGSS
Nancy Kane and Mary Undervill, Battle Creek Area Math & Science Center
This session will help unpack Performance Expectations in NGSS and evaluate alignment of inquiry focused activity. This will prepare teachers and students to make the move from scientific inquiry and performance assessment to solving problems through scientific inquiry and engineering.
Grades 3 – 5

D5 Native Plants in the School Curriculum
Michele Naylor, Kent Valley Charter School
Find out how you can incorporate native plants into your school curriculum. This session will explore ideas for activities, experiments, and other projects using the current GSC (science and social studies) standards for grades K-12. Also, some information on schoolyard gardens will be shared.
Grades 3 – 8

D6 Who Else Wants Biomaterials? Incredibly Wonderful Uses for Common Forest Plants
Alexandra Lorch, GVSU Biology Department
Forests would not be replaced by urbanization if their value was widely recognized. Scientists are discovering new ways to use forest plants for biomaterials. Biomaterials are sustainable products extracted from forests such as glue, dye, fiber, and fuel for energy.
Grades 6 – 8

D7 Activities of SMEE – Continued
Shannon Jong, Integrated Science Instructor, Lansing Community College
Lansing Community College Students
We’re back! This session features science activity sessions useful for family science nights or community events. They will engage you and help you plan your family science nights and events.
Grades K - 5

SESSION E: 2:00–3:00 pm

E1 Field Studies in Belize: An Interdisciplinary Study/Travel Experience
Kathy Pollock and Katherine Tooa, Muskegan Community College
Rainforest Ecology: Mayan Civilization: a life changing experience. This session will provide step by step instructions so you can organize a study/travel experience like the one to Belize designed at Muskegan Community College.
Grades K – 12

E2 NASA: Using Challenges to Teach Force and Motion to Inquiring Minds
Susan Kohler, NASA Education Specialist
Inquiry-based lessons around real-world engineering challenges will encourage students and ignite their curiosity. Come and design a balloon powered crew exploration vehicle. This session is part two of a two-part series. Registering for both sessions is recommended, but optional (note Session C4).
Grades 3 – 8

E3 Building Bridges
Mike Fillman, Lowell Area Schools
Using nothing but toothpicks, dental floss, and engineering skills, this session will teach how students can build bridges to support 7.10 pounds of weight without collapsing. He will explain how to guide his NGSS engineering activity that is a favorite of 5th grade students, and supply teachers with all the ideas and handouts needed to do this lesson in the classroom.
Grades K – 12

E4 Ideas for Teaching the Geologic History of Michigan
Stephen Mattos, GVSU Geology Department
Abigail Honnold, GVSU Student
This session will use maps, rock samples, and cross-sections to help teachers (and students) reconstruct the geologic history of Michigan.
Grades 7 – 12

E5 An Easy Path to Visible Absorption Data
Blair Miller and Andrew Lantz, GVSU Chemistry Department
An Easy Path to Visible Absorption Data
The Vernier SpectroVis Plus is a relatively simple, inexpensive spectrometer that may be used for basic visible absorbance measurements in the science lab. We will discuss and demonstrate the details.
Grades 7 – 12

E6 Modeling in Physics and Chemistry
Laura Slama and Kendra Gallert, East Kentwood High School
The modeling method of science is taking over Michigan. Come to learn about this inquiry-based pedagogy that will solve your struggles with how to implement NGSS!
Grades 10 – 12