



The Science Teachers' Association of Manitoba (STAM) presents:

Science SAGE 2016

"Imagination is more important than knowledge. For while knowledge defines all we currently know and understand, imagination points to all we might yet discover and create." Albert Einstein.

Friday, October 21st, 2016
8:00 a.m. - 4:00 p.m.
Westwood Collegiate
360 Rouge Road, Winnipeg

Program

For online registration, new, cancelled or full sessions, please visit the STAM website: www.stam.mb.ca.

Off-site Sessions

Times vary – Please check

Morning Keynote

9:00-10:00

Morning Sessions

10:30-11:30 11:30-12:30

10:30-12:30

Afternoon Sessions

1:30-2:30 2:30-3:30

1:30-3:30

Special Invitation to Past-presidents:

SC00 \$20

Past-Presidents' Luncheon
(Includes STAM membership,
conference registration,
and luncheon)

Reserved lunch table
11:30 – 1:30

Please register for SC00
as well as desired sessions.

SC99 8:00-9:00

MAPT AGM

(Manitoba Association
of Physics Teachers)

Annual General Meeting

All physics teachers are welcome!
A great opportunity to see what
MAPT is up to, make suggestions,
and become a member.

Exhibitors' Displays

Gymnasium

8:00 – 2:30

Please browse through the
Exhibitor Area for a chance to
explore new resources.

STAM AGM

Awards and Reception

3:30-4:15 p.m. (Cafeteria)

Recognize and celebrate
excellence in science education.
Connect with science colleagues
from around the province and
beyond.

New members are welcome to
join the STAM BOD.

Win prizes!

EVERYONE WELCOME

Urban Prairie Cuisine HOT LUNCH BUFFET (\$17)

11:30-1:30

Join us for a delicious
buffet luncheon, including:

Variety of salads
Smoked sliced beef
Rosemary chicken skewers
Chicken apple sausages
Wild mushroom meat balls
Perogies and dainties

Tickets must be pre-purchased.

STAM thanks the Engineers Geoscientists Manitoba

for sponsoring our
Nutrition Break

8:00–9:00 & 10:00-10:30

Please bring water bottles/coffee cups.



9:00-10:00

SC01 Morning Keynote Speaker – Theatre

Is the Future of Medicine Personal?

Molly Shoichet PhD, FRSC, NAE, O. Ont.



Professor Molly Shoichet holds the Tier 1 Canada Research Chair in Tissue Engineering at the University of Toronto. She has published over 550 papers, patents and abstracts and has given over 330 lectures worldwide. She currently leads a laboratory of 25 and has graduated 146 researchers. In her regenerative medicine research, Dr. Shoichet designs biomaterials to better understand cancer and to promote tissue and functional repair in models of stroke, spinal cord injury, and blindness. She founded three spin-off companies, and is actively engaged in translational research and science outreach. Dr. Shoichet is the recipient of many prestigious distinctions and the only person to be a Fellow of Canada's 3 National Academies: Canadian Academy of Sciences of the Royal Society of Canada, Canadian Academy of Engineering, and Canadian Academy of Health Sciences. Dr. Shoichet was the L'Oreal-UNESCO For Women in Science Laureate for North America in 2015 and elected Foreign Member of the US National Academy of

Engineering in 2016. She holds the Order of Ontario, Ontario's highest honour, and is a Fellow of the American Association for the Advancement of Science. In 2013, her contributions to Canada's innovation agenda and the advancement of knowledge were recognized with the QEII Diamond Jubilee Award. In 2016, Dr. Shoichet became a Foreign Member of the United States National Academy of Engineering (NAE). In 2014, Dr. Shoichet was given the University of Toronto's highest distinction, University Professor. Dr. Shoichet received her SB from the Massachusetts Institute of Technology (1987), and her PhD from the University of Massachusetts in Polymer Science and Engineering (1992).

With personal trainers and tailored suits, why don't we have personalized medicine? Working at the interface of chemistry, biology, and engineering, we are designing strategies with the individual in mind. But before we get to the patient, we're investigating models of disease to determine how we can better understand disease progression and how we can stop and reverse that disease instead of merely treating the symptoms. Molly will tell three promising stories regarding cancer, blindness and stroke. In each story, she will highlight both the underlying innovation in chemistry, engineering and biology, and the opportunities that lie ahead.

In cancer, most patients are treated similarly, with a series of drugs as the disease progresses. We wondered whether we could find a way to make this personal – take a biopsy of the person's cancer and figure out which drugs would be best suited to that individual. With this goal in mind, we first had to find a way to grow the cancer cells in the laboratory. To do this, we synthesized a water-swollen polymer, a hydrogel (think jello), in which to grow cancer cells in the laboratory. Now we can grow cancer cells in the laboratory and can figure out which drugs will be most effective.

In blindness due to age-related macular degeneration, the cells at the back of the eye, the photoreceptors, die. In order to stop and reverse blindness, these cells need to be replaced, yet finding a source of these cells is in itself difficult. In collaboration with Prof Derek van der Kooy's lab, we derived

photoreceptors for transplantation, but found that conventional strategies of transplanting these cells resulted in significant cell death. We designed an injectable hydrogel in which to transplant the cells and observed significantly greater survival and some functional repair.

The holy grail of regenerative medicine is the stimulation of the stem cells. Until the early 1990s, we didn't think that our brains had the capacity to regenerate. We now know that we all have stem cells in our brains. The challenge is to figure out how to stimulate them to promote repair. In collaboration with Prof Cindi Morshead's lab, we designed a patch (or bandaid) that could be applied directly on the brain in a model of stroke. With the sequential release of two proteins, we demonstrated that these resident stem cells could be stimulated to promote tissue repair.

These three stories underline the opportunity of collaborative, multi-disciplinary research at the intersection of chemistry, biology and engineering applied to solving problems in medicine. It is exciting to think what we will discover as this research continues to unfold.

Off-Site Sessions (Please check times and locations.)

For ONLINE REGISTRATION, new, cancelled or full sessions, please visit the STAM website at:
www.stam.mb.ca

Notes: *TIMES AND LOCATIONS VARY **Catered lunch NOT available off-site
***Participants must pre-register for off-site sessions - registration NOT available at off-site sessions.
****Off-site sessions have limited availability

SC02 Project Wet (9:30-3:30)

Nathalie Bays, Oak Hammock Marsh Interpretive Centre

Location: Oak Hammock Marsh Interpretive Centre, 1 Snow Goose Bay at Hwy 220, 9:30-3:30 p.m.

Level: General

Project WET (Water Education for Teachers) is an activity book which contains games, experiments and demonstrations related to water for K-12. Find out how these activities are linked to teaching education for sustainable development (ESD). Includes WET 1.0 activity book; 2.0 book available for \$20. Please dress for the weather. The café will be open to purchase lunch.

SC03 Take Flight (1:00-3:00 p.m.)

Chris Parsons, Royal Aviation Museum of Western Canada (programs@RoyalAviationMuseum.com)

Location: Royal Aviation Museum of Western Canada, 958 Ferry Road, Hangar T-2, 1:00 – 3:00 p.m.

Level: General

Come for a tour of the Museum and an overview of the ten children's programs now offered, as well as a look at the new aviation career-focused program.

SC04 Can You Dig It? (10:00-2:00 p.m.)

Victoria Markstrom, Canadian Fossil Discovery Centre (victoria@discoverfossils.com)

Location: Canadian Fossil Discovery Centre (CFDC), 111-B Gilmour St., Morden, 10:00-2:00 p.m.

Level: General

Meet at the CFDC in Morden for 10:00am. We'll begin with a tour, examine fossils and dig some up in the lab. Participants must wear appropriate field gear (closed-toed shoes, hats, and sunscreen; and bring water bottles). More information at www.discoverfossils.com.

SC05 St. Boniface Hospital Research Youth BIOLab: Connecting Biomedical Science to Curriculum (9:30-12:00 p.m.)

Stephen Jones, St-Boniface Hospital Research Centre (sjones@sbrca.ca) & Meghan Kynoch, St. Boniface Hospital Research Youth BIOLab

Location: St. Boniface Hospital Albrechtsen Research Centre, 351 Tache Avenue, 9:30 – 12:00 p.m.

Level: 6-12

St. Boniface Hospital Research Centre runs a full size biomedical research lab for teachers and students. Come and see how we can connect basic medical research done at St. B to the science curriculum in an authentic and engaging setting! Detailed directions and parking information will be emailed to attendees once registrations are complete and contact information is received.

SC06 Manitoba Hydro Place - A Leader in Energy Efficiency *(12:30 – 3:30 p.m. including bussing)

Tom Akerstream, Manitoba Hydro

Location: Manitoba Hydro Place - 360 Portage Ave, *1:00 – 3:00 p.m. (bussing between Westwood School and Manitoba Hydro Place provided)

*PLEASE MEET SHUTTLE BUS AT 12:30 P.M. IN FRONT OF WESTWOOD SCHOOL OFFICE.

Level: 6-12

360 is not just the street address of Manitoba Hydro Place; it also represents a new way of thinking when it comes to planning, design and construction. Every aspect of Manitoba Hydro Place is designed to work in harmony with the natural environment and the people in it. The design team utilized the principles of indigenous architecture which is governed by basic science, to create the most energy efficient office tower in North America. Tom Akerstream will share insight into these energy efficiency technologies and how you as teachers can share this knowledge with your students: our future architects, engineers and environmentalists.

Engineers Geoscientists Manitoba Spaghetti Bridge Competition

The competition is open to all school children (grades 1 - 12). The goal is to see whose bridge will support the heaviest load. The competition is a fun event giving the opportunity for students, teachers, and parents to get involved in "hands-on engineering". In addition to the \$2000.00 in prize money up for grabs by the students, the engineers of Manitoba have expanded the event to be a meaningful charity event for the whole community. Engineers Geoscientists Manitoba will make a pasta donation to Winnipeg Harvest equal to the cumulative weight supported by all entries.

Teachers: Enter a minimum of 10 students into the Annual Spaghetti Bridge Competition and receive a \$100 gift certificate to your class for a Pizza Party!



Contact Angela Moore at amoore@apegm.mb.ca for more information.

9:00-10:00

Is the Future of Medicine Personal?
SC01 Morning Keynote Speaker - Theatre
Dr. Molly Shoichet

10:30-12:30 (2 HOURS)

SC07 Digging Deeper: Discover Rocks and Minerals

Kelly McBride, Mining Matters, and Jeff Young, University of Manitoba (kmcbride@miningmatters.ca)

Level: 4-7

Participants will take a walkthrough tour of the Deeper and Deeper: Discovering Rocks and Minerals teacher resource. Test the physical properties of minerals, learn how to look for the clues in rocks to determine how they were formed, gain a better understanding of the three rock groups and explore the rock cycle through hands-on activities that can be done in the classroom. Discover what is in the ground beneath you.

SC08 Design Process: Easier Than You Think...and a Lot of Fun!

Gabe Kraljevic, Manitoba Association of Physics Teachers (gabe.kraljevic@7oaks.org)

Level: 4-8

In this hands-on workshop teachers will explore how to incorporate the design process into their science teaching. Leave with ideas and materials you can use the day after your next trip to the dollar store!

SC09 Ship the Chip Design Challenge

Maria Nickel, Ecole Stonewall Centennial (marianickel@shaw.ca)

Level: 4-12 *Repeated Session*

Lesson focuses on engineering package designs that meet the needs of safely shipping a product. Students work in teams of "engineers" to design a package using standard materials that will safely ship a single chip through the mail to the school address. Designed for the grade 7 forces and structures unit.

SC10 Adopt-a-River (AAR)

Michele Kading and Denis Gautron, Save Our Seine River Environment Inc. (michele.kading@gmail.com)

Level: 4-12

Learn how to use a local stream – like Winnipeg's Seine River – to teach authentic scientific techniques and instill stewardship values. This teacher-ready program (English/French) has modules suitable for grades 4 through 12. In this 2-hour hands-on session, we will measure flow, turbidity, pH, dissolved oxygen, hardness, and bacteria. AAR kits are available to schools in the LRSD.

SC11 Teaching STEM & Coding with Virtual Robotics

Priyanka Tuteja, Chris Schulz, and Ruby Li, Cogmation Robotics Inc. (priyanka@cogmation.com)

Level: 6-12 *Repeated Session*

From Grand Rapids to Beijing, from Australia to LA, Cogmation's Virtual Robotic Toolkit is being used to excite kids while they learn.

SC12 The GMO Debate Rages On!

Dr. Claude Lachance, Amanda Richards, and Vanessa Meless, Bio-Rad Laboratories (Canada) Ltd

(info_canada@bio-rad.com)

Level: 9-12

Are genetically modified (GM) crops a good thing? Do all countries have the same GM food labeling requirements? Regardless of where you stand in the GM debate, wouldn't it be interesting to know which foods you eat are GM foods? This hands-on workshop teaches the basics of DNA extraction, PCR, and gel electrophoresis and how these techniques are used to test common grocery store food products for the presence of GM foods.

SC13 Rethinking Final Assessment in Grade 9 and 10 Science

Shawn Sadler, Dawn Glenday, and Cindy Mason, Ste. Anne Collegiate (ssadler@srsd.ca)

Level: 9-12

Unhappy with "conventional" tests and exams? This session will invite you to participate in a station-based, hands-on alternative to final assessment in grade 9 and 10 Science courses. These assessments have been very successful for us, encouraging critical thought and better engagement of executive functioning skills, giving students a better way to show what they know, and helping us see what they actually understand. Come out and see how they work and get our materials to use in your own classes!

SC14 The Weather Unit in Grade 10 Science

Kevin Kitching, Sunrise School Division

Level: 10 *Repeated Session*

This session presents activities that teach the basic science principles connected to the concepts in the weather unit, including heat vs temperature, convection cells, and types of heat transfer. You'll be excited to get the cause of the Coriolis effect straightened out once and for all!

10:30-11:30 (1 HOUR)

SC15 Dig It! Discover Your Inner Paleontologist

Larry Verstraete, Winnipeg Educator and Author

Level: 3-8

Seventy million years ago, during the Cretaceous period, the Western Interior Seaway sliced the North American continent in two. While dinosaurs roamed the land on either side, marine creatures - some the size of school buses - flourished in the warm sea. In this session, learn about the Seaway's creatures, why southwestern Manitoba is a hotbed of fossil discovery, and how paleontologists solve ancient puzzles. Discover how to integrate experiences into your science program that not only further the outcomes, but also excite and challenge students to look deeply into their own surroundings and, perhaps, who knows, be the ones who someday unearth the next, great paleontological treasure.

SC16 Hands-On, Minds-On: Engaging Youth with Science!

Let's Talk Science, University of Manitoba

Level: 4-8

Do you want some fresh new ideas for hands-on/minds-on engagement in the classroom? Test out a variety of adaptable activity ideas for Grades 4-8. Let's Talk Science facilitators will lead you through multiple science-based experiences.

SC17 Sensors & Inquiry Based Science for the 21st Century Classroom

Bill Young, Glenlawn Collegiate

Level: 6-12 *Repeated Session*

This session will examine the use of sensors in the science classroom. Participants will have an opportunity to examine a variety of sensors and determine how the sensors integrate with the different platform devices to allow for more inquiry based learning in the classroom. This session will allow teachers to become better acquainted with using datalogging technology and related software to meet science, technology, engineering and mathematic (STEM) curriculum goals. Teachers will have an opportunity to take away a number of different ideas that are tailored made for biology, chemistry, or physics classrooms. The session is suited for any

grade 6 through 12 science teacher. Specific activities and resources will be reviewed. Once teachers realize the potential within these technological tools, their creativity will explode and students will benefit from a more authentic learning environment based on live real world data collection. The importance of this session centres around the idea that inquiry-based learning is critical to students understanding of science and this can be enhanced through the technology of computers, tablets, engaging software and Bluetooth science data collection sensors.

SC18 Engineering at the University of Manitoba: Applying Science to Society

Dr. Jonathan Beddoes, Faculty of Engineering, University of Manitoba

Level: 6-12

Dean Beddoes will highlight how engineers impact society, the diversity needed by the profession, and the exciting opportunities available to engineering students at the University of Manitoba.

SC19 Upstream Downstream Neighbours

Kent Lewarne, South Central Eco Institute (klewarne@prspirit.org)

Level: 6-12

Who is collecting sampling water near you? The South Central Eco Institute collects and analyzes water across 10 conservation districts in Manitoba.

SC20 Caring for our Watersheds

Tabitha Martens, Oak Hammock Marsh Interpretive Centre

Level: 7-12 *Repeated Session*

Caring for our Watersheds is an educational program and funding contest that aims to empower students to imagine, develop and create environmental solutions in their schools or local community. This contest includes project implementation funding.

SC21 Perimeter Exploration - The Mystery of Dark Matter

Noah Joseph, River East Transcona School Division

Level: 9-12

We will be learning about the amazing resources offered by the Perimeter Institute of Theoretical Physics.

SC22 Medical Physics & 3D Printing

Dr. Daniel Rickey, CancerCare Manitoba (drickey@cancercare.mb.ca)

Level: 9-12

Experiences using 3D printing technology in healthcare will be described, with applications towards radiation therapy and surgery.

SC23 Discrepant Events for the Science Classroom

Sid Greenstone, Hanover School Division, and James Palcik, Flinn Scientific Canada

Level: 9-12 *Repeated Session*

Flinn Scientific Canada presents “Discrepant Events for the Classroom”. This is a hands-on session involving some really neat and useful scientific inquiry activities that will motivate your students and engage them in the study of various science topics. ALL MATERIALS SUPPLIED BY FLINN SCIENTIFIC for this session. Teachers will be participating in at least four different lab activities during this session. Come with an open mind and leave with some fantastic ways to enrich your existing chemistry program! This is a must-attend session for all teachers.

SC24 What's in the Air You Breathe?

Kathi Neal, The Manitoba Lung Association, and Sandy Hutchison, Health Canada (kathi.neal@mb.lung.ca)

Level: 11 *Repeated Session*

Learn about radon gas and an opportunity for teachers/classes to participate in awareness and education on radon and its effects on the lungs through a video contest.

11:30-12:30 (1 HOUR)

SC25 What does the National Science Teachers Association (NSTA) have to offer Canadian Teachers?

Dr. Michael Bowen, National Science Teachers Association (gmbowen@yahoo.com)

Level: General

NSTA offers a wide variety of professional development resources, teaching resources, magazines, books, webinars and so forth. This session will discuss and present the advantages and resources that NSTA offers for Canadian teachers. There will be door prizes for NSTA books, some free resources, and information about how to get a reduced-cost membership.

SC26 Nourishing the Planet in the 21st Century

Kent Lewarne, Bob Adamson and Ray Cochrane, Nutrients for Life Canada

Level: 4-12

Participants will learn about the Biological Sciences Curriculum Study (BSCS) approved resources and programs available through Nutrients for Life Canada, including the Garden Grant program.

SC27 Tomatosphere™: An ‘Out-of-This-World’ Science Program

Let's Talk Science, University of Manitoba

Level: 6-12

Tomatosphere™ uses the excitement of space exploration to teach the skills and processes of scientific experimentation and inquiry. Through Tomatosphere™, students investigate the effects of the space environment on the growth of food, and teachers can access online, curriculum-based educator resources that complement the program. Join Let's Talk Science for an interactive session that shows how you can implement and integrate Tomatosphere™ into your Grade 6-10 classroom. See how other teachers are effectively using the Tomatosphere™ program to help teach science inquiry skills using the exciting context of space exploration and preparing for human travel to Mars!

SC28 Sensors & Inquiry Based Science for the 21st Century Classroom

Bill Young, Glenlawn Collegiate

Level: 6-12 *Repeated Session*

This session will examine the use of sensors in the science classroom. Participants will have an opportunity to examine a variety of sensors and determine how the sensors integrate with the different platform devices to allow for more inquiry based learning in the classroom. This session will allow teachers to become better acquainted with using datalogging technology and related software to meet science, technology, engineering and mathematic (STEM) curriculum goals. Teachers will have an opportunity to take away a number of different ideas that are tailored made for biology, chemistry, or physics classrooms. The session is suited for any grade 6 through 12 science teacher. Specific activities and resources will be reviewed. Once teachers realize the potential within these technological tools, their creativity will explode and students will benefit from a more authentic learning environment based on live real world data collection. The importance of this session centres around the idea that inquiry-based learning is critical to students understanding of science and this can be enhanced through the technology of computers, tablets, engaging software and Bluetooth science data collection sensors.

SC29 The Process of Science

Brian Dentry, River East Transcona School Division

Level: 7-12

How do scientists think? Students will think like scientists as they collaborate together and communicate in creative ways to answer curiosity-driven questions. This grade 7 to 12 classroom kit provides teachers with print and digital resources to inspire students to explore the habits of mind that scientists practice through hands-on activities that encourage them to be curious, creative, and collaborative.

SC30 Caring for our Watersheds

Tabitha Martens, Oak Hammock Marsh Interpretive Centre

Level: 7-12 *Repeated Session*

Caring for our Watersheds is an educational program and funding contest that aims to empower students to imagine, develop and create environmental solutions in their schools or local community. This contest includes project implementation funding.

SC31 Aerospace as a Context for Real-World Issues in Physics

Scott Taylor, Let's Talk Science

Level: 9-12

This workshop for Grade 9-12 teachers illustrates how the latest developments in aerospace are opportunities to explore science, technology, society and environment (STSE) issues and develop critical thinking, communication, and collaboration skills. Participants will be engaged in seeing how providing a real-world context for addressing physics curriculum outcomes can increase student engagement and support the development of 21st-century skills and scientific literacy. All resources are accessible at no charge on CurioCity, Let's Talk Science's online place for students and teachers.

SC32 Discrepant Events for the Science Classroom

Sid Greenstone, Hanover School Division, and James Palcik, Flinn Scientific Canada

Level: 9-12 *Repeated Session*

Flinn Scientific Canada presents "Discrepant Events for the Classroom". This is a hands-on session involving some really neat and useful scientific inquiry activities that will motivate your students and engage them in the study of various science topics. ALL MATERIALS SUPPLIED BY FLINN SCIENTIFIC for this session. Teachers will be participating in at least four different lab activities during this session. Come with an open mind and leave with some fantastic ways to enrich your existing chemistry program! This is a must-attend session for all teachers.

SC33 What's in the air you breathe?

Kathi Neal, The Manitoba Lung Association, and Sandy Hutchison, Health Canada (kathi.neal@mb.lung.ca)

Level: 11 *Repeated Session*

Learn about radon gas and an opportunity for teachers/classes to participate in awareness and education on radon and its effects on the lungs through a video contest.

SC34 Inquiry based IB Sciences

Presenters TBA, St. James School Division IB Program

Level: 11-12

A round table workshop addressing approaches to teaching and learning in the IB sciences specific to Biology, Chemistry and Physics. Learn more about the IB sciences and meet with colleagues to discuss ideas, share resources and assessment material. All teachers of IB Sciences and Provincial Curriculum welcome.

1:30-3:30 (2 HOURS)

SC35 Ship the Chip Design Challenge

Maria Nickel, Ecole Stonewall Centennial (marianickel@shaw.ca)

Level: 4-12 *Repeated Session*

Lesson focuses on engineering package designs that meet the needs of safely shipping a product. Students work in teams of "engineers" to design a package using standard materials that will safely ship a single chip through the mail to the school address. Designed for the grade 7 forces and structures unit.

SC36 Teaching STEM & Coding with Virtual Robotics

Priyanka Tuteja, Chris Schulz, and Ruby Li, Cogmation Robotics Inc. (priyanka@cogmation.com)

Level: 6-12 *Repeated Session*

From Grand Rapids to Beijing, from Australia to LA, Cogmation's Virtual Robotic Toolkit is being used to excite kids while they learn.

SC37 Manitoba Envirothon

Glenn Peterson and Co-presenters TBA, Manitoba Forestry Association (gpeterson@thinktrees.org)

Level: 9-12

Two or three short sessions on Envirothon core topics: Forestry, Aquatics, Soils and Wildlife

SC38 The Weather Unit in Grade 10 Science

Kevin Kitching, Sunrise School Division

Level: 10 *Repeated Session*

This session presents activities that teach the basic science principles connected to the concepts in the weather unit, including heat vs temperature, convection cells, and types of heat transfer. You'll be excited to get the cause of the Coriolis effect straightened out once and for all!

1:30-2:30 (1 HOUR)

SC39 Teaching Science Experientially

Said Hassan, Department of Life Sciences, Red River College (shassan@rrc.ca)

Level: General

In this session the presenter will share his thoughts and experiences in teaching sciences in an "experiential" way based on established concepts of experiential learning. Opportunities and challenges in experiential teaching will be discussed along with relevant examples.

SC40 Follow the Yellow Fish Road

Michele Kading, Trout Unlimited Canada

Level: General *Repeated Session*

Learn more about the Yellow Fish Road Program that is being offered in Winnipeg. This exciting program and its stenciling action project will fit well into a water theme at almost any grade level.

SC41 Coding in Your Classroom

Nusraat Masood, Jill Lautenschlager, Lena Yusim, and Michelle Carriere, WISE Kid-Netic Energy (wisekidneticenergy.ca)

Level: General *Repeated Session*

We will offer plugged and unplugged resources for teachers to introduce and encourage coding in their classrooms. We will feature our new CodeMakers workshop.

SC42 Indigenous Science with the Birch Bark Canoe

Randy Herrmann, ENGAP, University of Manitoba (Randy.Herrmann@umanitoba.ca)

Level: 5-9 *Repeated Session*

Utilizing the Birch Bark Canoe: Navigating a New World DVD and curriculum guide to introduce science concepts.

SC43 Integrating Language Arts, Science and Art

Tina Hellmuth, Winnipeg School Division

Level: 3-8

Spend time creating machines and structures to engage students in learning.

SC44 Issues about using News Media Resources in Science Classrooms: Insights for Science Teachers

Michael Bowen, National Science Teachers Association (NSTA) (gmbowen@yahoo.com)

Level: 6-12

The session will have two parts. Firstly, we will discuss some of the current issues with the presentations of science in the news media and what this means for the understandings of science that arise for students. In the second part participants will be provided resources for an analysis session activity that could be conducted with students to help them learn about media presentations of science without raising the problematic issue discussed in the first part of the session. Finally, at the end descriptions of other activities that teachers can do with their students that may also address the shortcomings of how science is presented in the news media will be provided and discussed, as well as a collection of resources that may be useful for teachers wishing to use news media as part of their courses (as well as a resource list of web sites, publications, and books that may be useful for a classroom teacher).

SC45 Black Holes

Brian Dentry, River East Transcona School Division

Level: 7-12

Black holes are fascinating objects that capture the imagination of students everywhere. In this workshop we will explore the basic physics behind black holes, the latest observational evidence for them, as well as some of their more exotic features (such as time slowing down). We will introduce some classroom resources that you may take back with you to bring this awesome topic into your classroom. Also, you will be given a link to the Perimeter Institute's store where you can download FREE resources. This session would be interesting for anyone at any grade level.

~~**SC46 The Big Bang and the Expanding Universe CANCELLED**~~

~~Noah Joseph, River East Transcona School Division~~

~~Level: 9~~

~~In this session we will be looking at the expanding universe resource from the Perimeter Institute. This resources covers and expands upon the origin and evolution of the universe for the grade 9 curriculum.~~

SC47 Investigate Photosynthesis and Cellular Respiration with Algae Beads

Claude Lachance, Amanda Richards, and Vanessa Meless, Bio-Rad Laboratories (Canada) Ltd (www.bio-rad.com)

Level: 9-12

Use algae beads in a colorimetric assay to study both photosynthesis and cellular respiration in authentic inquiry investigations. Learn how to extend this lab to study the effects of light intensity, light colour, temperature and other organisms on these processes.

2:30-3:30 (1 HOUR)

SC48 Follow the Yellow Fish Road

Michele Kading, Trout Unlimited Canada

Level: General *Repeated Session*

Learn more about the Yellow Fish Road Program that is being offered in Winnipeg. This exciting program and its stenciling action project will fit well into a water theme at almost any grade level.

SC49 Coding in Your Classroom

Nusraat Masood, Jill Lautenschlager, Lena Yusim, and Michelle Carriere, WISE Kid-Netic Energy (wisekidneticenergy.ca)

Level: General *Repeated Session*

We will offer plugged and unplugged resources for teachers to introduce and encourage coding in their classrooms. We will feature our new CodeMakers workshop.

SC50 Pet Shops and Grocery Stores

Tina Hellmuth, Winnipeg School Division

Level: 3-8

Explore a variety of cool activities to enhance hands-on experiences in the area of biology.

SC51 Water Stewardship in the Classroom – and Beyond

Marlo Campbell, Communications Director, Lake Winnipeg Foundation

Level: 3-12

The Lake Winnipeg Foundation (LWF) is an environmental charity working to restore and protect the health of Lake Winnipeg and its watershed. As part of its public education programming, LWF is pleased to support local teachers by offering small grants to help offset transportation costs and/or entrance fees associated with water-related field trips. As well, LWF offers free in-class presentations that provide age-appropriate information about Lake Winnipeg and its current health challenges, an overview of LWF's eight-point plan to translate science into action, and practical tips for how citizens can get involved in solutions. Come take part in an LWF presentation and learn more about how LWF can assist you in accessing new opportunities for your students.

SC52 Indigenous Science with the Birch Bark Canoe

Randy Herrmann, ENGAP, University of Manitoba (Randy.Herrmann@umanitoba.ca)

Level: 5-9 *Repeated Session*

Utilizing the Birch Bark Canoe: Navigating a New World DVD and curriculum guide to introduce science concepts.

SC53 Geology and Mathematics

Jeff Young, University of Manitoba

Level: 6-12

We will do activities using mathematics to better understand geologic structures such as folds and faults.

SC54 The Expanding Universe

Brian Dentry, River East Transcona School Division

Level: 7-12

We are part of an incredibly amazing universe. Students will be able to complete activities focused on different aspects of the cosmos from the Big Bang, to the Cosmic Microwave Background (CMB), to the expanding universe. This grade 7-12 classroom kit provides teachers with print and digital resources to inspire students and aid with understanding of the universe using activities based on these topics that are easily adapted to any curriculum.

SC55 Global Space Balloon Challenge

Andrea Misner, Seven Oaks School Division (andrea.misner@7oaks.org)

Level: 9-12

Do high altitude science with your classes!

SC56 New Manitoba climate change videos for your classroom

Curtis Hull, Climate Change Connection

Level: 9-12

We will present and discuss two new lecture videos that are due to be released in October 2016. The videos have been professionally produced in the Manitoba Education studios with the intention that they be used in your classrooms. These are the presenters in the videos and their topics:

- Dr. Danny Blair of the University of Winnipeg presents “Climate Change Impacts in Manitoba”. This is an overview of the [Prairie Climate Centre’s Climate Atlas](#). The Atlas is a groundbreaking website presentation of the climate predictions amalgamated from 12 global computer models. In it we get to see what climate changes may be in store for the Canadian Prairies to the end of this century.
- Curtis Hull of Climate Change Connection presents “Manitoba Emissions/Manitoba Solutions”. This report starts with an overview of where Manitoba’s greenhouse gas (GHG) emissions come from and what their trends have been over time. It concludes with what Curt believes must be the essential approach Manitoba needs to take to address this problem appropriately.

REGISTRATION INFORMATION <https://stammtspdday2016.eventbrite.ca>

Registration available online September 6th – October 20th, 2016 at www.stam.mb.ca.

For NEW, CANCELLED or FULL sessions, visit the STAM website at: www.stam.mb.ca

REGISTRATION/MEMBERSHIP INFORMATION

PLEASE READ CAREFULLY

Sessions are reserved at the time of registration. A limited number of spaces for sessions may be available for STAM members only at the registration desk (Westwood Collegiate only) on Friday, October 21st, 2016. If you would like to attend a particular session, please register early. Changes to the program may be viewed on the STAM website: www.stam.mb.ca

STAM Membership 2016-2017*

General	\$20.00
Full-time student	\$20.00

**Please note membership fees may be paid in conjunction with the conference fee.*

Membership includes:

- Reduced SAGE conference fees
- Reduced science workshop/in-service fees

<u>Early Bird Full Day Conference Fees (before October 1st)</u>	<u>Full Day Conference Fees (Oct. 1st – 21st)</u>	
STAM Member	\$40.00	\$50.00
Non-Member	\$59.00	\$69.00
*Full-time student (non-member)	\$35.00	\$45.00
*(free with STAM membership)		

<u>Early Bird Half Day Conference Fees (before October 1st)</u>	<u>Half Day Conference Fees (Oct. 1st – 21st)</u>	
STAM Member	\$20.00	\$30.00
Non-Member	\$39.00	\$49.00
*Full-time student (non-member)	\$20.00	\$30.00

*NOTE: There is no charge for students who are STAM members (including those who pay for their membership at time of registration). **Please show student card at Registration Desk.**

Lunch (NOT AVAILABLE AT OFF-SITE SESSIONS) \$17.00

(Lunch tickets may **NOT** be available for purchase at the conference. Tickets must be pre-ordered with your conference registration.)

NOTE: For **regular STAM members**, your total early bird cost for the conference, including a STAM membership, is **\$60.00** (\$77.00 with lunch). For students who pay for a STAM membership, your total early bird cost is \$20.00 (for the STAM membership – no charge for conference).

On-Site Registration October 21st 8:00 -10:00 a.m.

On-site registration is available for STAM members only. Memberships may be purchased on-site.

On-site payment may be cash, cheque or credit card.

- ◆ Please go to the STAM website at www.stam.mb.ca and follow the link for online registration.
- ◆ Please check website for session updates on new, full and cancelled sessions.
- ◆ Conference fees and STAM memberships are non-refundable.
- ◆ Registration is on a first-come basis and many sessions will fill up quickly.

Urban Prairie Cuisine
HOT LUNCH BUFFET (\$17)
11:30-1:30

Join us for a delicious
buffet luncheon, including:

- Variety of salads
- Smoked sliced beef
- Rosemary chicken skewers
- Chicken apple sausages
- Wild mushroom meat balls
- Perogies and dainties

Tickets must be pre-purchased.

Exhibitor Displays

Gymnasium
9:00 – 2:30

Nutrition Breaks

8:00 – 9:00
10:00-10:30
Please bring
water bottles/coffee mugs.

Sponsored by APEGM

STAM AGM

Awards and Reception
3:30-4:15 p.m. (Cafeteria)

Recognize and celebrate
excellence in science education.
Connect with science colleagues
from around the province and
beyond. Share a brief history in a
year of STAM.

New members welcome to join
the STAM Board.
Win prizes!

EVERYONE WELCOME