



The Science Teachers' Association of Manitoba

## Science SAGE 2015

Friday, October 23, 2015 8:00 a.m.–4:00 p.m.  
Westwood Collegiate, 360 Rouge Road

I can't imagine anything more important than air, water, soil, energy and biodiversity. These are the things that keep us alive.  
— David Suzuki

For online registration, new, cancelled or full sessions, please visit the STAM website: [www.stam.mb.ca](http://www.stam.mb.ca).

### PROGRAM

**8:00 a.m.–2:30 p.m.**

Exhibitors' Displays: Gymnasium

**8:00–9:00 a.m.**

Nutrition Break

**Times vary: Please check**

Off-site Sessions

**9:00–10:00 a.m.**

Morning Keynote

**10:00–10:30 a.m.**

Nutrition Break

**10:30–11:30 a.m. ; 11:30 a.m.–  
12:30 p.m.; 10:30 a.m.–12:30 p.m.**

Morning Sessions

**11:30 a.m.–1:30 p.m.**

Hot lunch buffet (\$15)

**1:30–2:30 p.m.; 2:30–3:30 p.m.;**

**1:30–3:30 p.m.**

Afternoon Sessions

**3:30–4:00 p.m.**

STAM AGM, Awards and  
Reception: Cafeteria

### KEYNOTE

#### **9:00–10:00 a.m. Theatre SC01 How Learning About the Brain is Easier And More And More Fun Than You Think**

**Greg Gage Popular Neuroscience**

In this energetic, highly entertaining talk, TED Fellow Greg Gage uses a cockroach to show how brains receive and deliver electric responses. As the cockroach's leg twitches, Gage uses a low-cost version of electro-physiology to see and hear the insect's brain function on his iPad. It's an astounding "Aha!"



moment for audience members that breaks down the assumed barriers of neuroscience research—too expensive, too complicated, too advanced—and shows students that hands-on learning about the brain is possible, right here and right now.

Neuroscientist and engineer Greg Gage is cofounder of Backyard Brains: a company that provides affordable neuroscience experiment kits for students of all ages. Gage's inventions are filling an important gap in education, showing kids that you don't need a PhD or expensive equipment to learn about—and experiment with—the brain. "This visual and interactive approach to neuroscience can appeal to the masses. Through these simple, entry-level devices created from off-the-shelf electronics, Backyard Brains hopes to inspire the next generation of neuroscientists and start the 'neuro-revolution'."—CNN

Before becoming a neuroscientist, Gage worked as an electrical engineer making touchscreens. As he told the *Huffington Post*: "Scientific equipment in general is pretty expensive, but it's silly because before [getting my PhD in neuroscience] I was an electrical engineer, and you could see that you could make it yourself. So we started as a way to have fun, to show off to our colleagues, but we were also going into classrooms around that time and we thought, wouldn't it be cool if you could bring these gadgets with us so the stuff we were doing in advanced PhD programs in neuroscience, you could also do in fifth grade?" His latest pieces of gear: the Roboroach, a cockroach fitted with an electric backpack that makes it turn on command, and BYB SmartScope, a smartphone-powered microscope. As half of Backyard Brains, neuroscientist and engineer Greg Gage builds the SpikerBox—a small rig that helps kids understand the electrical impulses that control the nervous system. He's passionate about helping students understand how our brains and our neurons work, because, as he says, we still know very little about how the brain works—and we need to start inspiring kids early to want to know more. A TED Fellow who has spoken at TED2015 and TEDGlobal, Gage has been featured in *Popular Science*, the *Huffington Post*, *Daily Mail*, and *The Scientist*.

**8:00 a.m.–2:30 p.m.**

## **Exhibitors' Displays**

### **Gymnasium**

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

**8:00–9:00 a.m. &**

**10:00–10:30 a.m.**

## **Nutrition Breaks**

STAM thanks the Engineers Geoscientists Manitoba for sponsoring our Nutrition Breaks. Please bring water/coffee bottles.



**8:00–9:00 a.m.**

## **SC99 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.

**Code:** SC99

**11:30 a.m.–1:30 p.m.**

## **Hot Lunch Buffet (\$15)**

Join us for a delicious pasta and salad buffet luncheon. Tickets must be pre-purchased.

**11:30 a.m.–1:30 p.m.**

## **SC00 Past-Presidents' Luncheon (\$20)**

Special Invitation to Past-presidents.

Includes STAM membership, conference registration, and luncheon.

Reserved lunch table. Please register for SC00 as well as desired sessions.

**Code:** SC00

**3:30–4:00 p.m.**

## **STAM AGM, Awards and Reception**

### **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.**

## **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](http://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).

**10:15 a.m.–3:30 p.m.**

## **SC02 Digging for Fossils!**

### **Victoria Markstrom, Canadian Fossil Discovery Centre**

Participate in one of the CFDC's leading school programs and become a paleontologist for a day! Enjoy a guided tour of the museum galleries, experience an activity in evolution, and dig for real fossils while enjoying a BBQ at the dig site! More info at [www.discoverfossils.com](http://www.discoverfossils.com).

**Location:** Meet at 10:15 a.m. at Canadian Fossil Discovery Centre, Morden Manitoba

**Level:** General **Code:** SC02

**10:00 a.m.–3:30 p.m.**

## **SC03 Project Wet**

### **Nathalie Bays, Oak Hammock Marsh Interpretive Centre**

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 ESD. Includes WET 1.0 and 2.0 activity books. Please dress for the weather.

**Location:** Oak Hammock Marsh

**Level:** General **Code:** SC03

**9:00 a.m.–3:00 p.m.**

## **SC04 Earth: Accelerating the Manitoba Science Curriculum**

### **Jeff Young, Department of Geological Sciences, University of Manitoba, and Janice Williams, Mining Matters**

Teachers will explore how physics, chemistry, biology and math help geoscientists identify and document Earth processes during a full day workshop. This inquiry-based workshop builds upon a basic understanding of Earth materials and environments. Parking passes will be supplied to carpools.

**Location:** Wallace Building, University of Manitoba, 9:00 - 3:00 p.m.

**Level:** 4–10 **Maximum:** 20 participants

**Code:** SC04

**1:30–3:30 p.m.**

## **SC05 St. Boniface Hospital Research Youth BIOlab: Connecting Biomedical Science to Curriculum**

### **Stephen Jones, St-Boniface Hospital Research Centre ([sjones@sbr.ca](mailto:sjones@sbr.ca))**

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 contact information is received.

**Location:** St-Boniface Hospital Research Centre, 351 Tache Avenue

**Level:** 4-12 **Code:** SC05

**9:00 a.m.–4:00 p.m.**

## **SC06 Teaching About Electricity–Grade 9 Science**

### **Jehu Peters, University of Winnipeg Education Program**

In this all-day workshop sponsored by Manitoba Hydro, teachers will learn to use materials to address the outcomes of the grade nine science electricity unit. The workshop is presented by Jehu Peters, a recent graduate from U of W. This workshop

was designed by Don Metz, University of Winnipeg, and an outcome based module written by Don is included in the resources.

**Location:** Manitoba Electrical Museum & Education Centre, 680 Harrow Street, Winnipeg

**Level:** 9 **Maximum:** 20 participants

**Code:** SC06

**9:00–11:30 a.m.**

## **SC07 Zoos in a Changing Climate and the Changing Climate of Zoos**

**Karen Lind, Assiniboine Park Zoo**  
(klind@assiniboinepark.ca)

Repeated session.

This session will highlight the role of a modern zoo through our organization's ex-situ and in-situ field work. Come experience how this research is incorporated into our curriculum linked programs and gain resources to incorporate into your class.

**Location:** Assiniboine Park Zoo

**Level:** 9–12 **Code:** SC07

**1:00–3:30 p.m.**

## **SC08 Zoos in a Changing Climate and the Changing Climate of Zoos**

**Karen Lind, Assiniboine Park Zoo**  
(klind@assiniboinepark.ca)

Repeated session.

This session will highlight the role of a modern zoo through our organization's ex-situ and in-situ field work. Come experience how this research is incorporated into our curriculum linked programs and gain resources to incorporate into your class.

**Location:** Assiniboine Park Zoo

**Level:** 9–12 **Code:** SC08

## **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 a.m.**

## **SC01 Morning Keynote Speaker: Theatre**

**Greg Gage Popular Neuroscience**

**Code:** SC01

**10:30 a.m.–12:30 p.m.**  
**2 hours**

## **SC09 De Pierre à Pierre**

**Janice Williams and Julie Lepine,**  
**Mining Matters | Une mine de**  
**renseignements (schoolprograms@**  
**miningmatters.ca)**

Les enseignants apprendront à observer les propriétés des ressources naturelles en les manipulant de diverses façons. Ils exploreront les méthodes utilisées pour classer les minéraux et les roches, à mesure qu'ils en découvrent l'utilisation dans leur vie quotidienne.

Language of instruction: French

**Level:** K–8 **Code:** SC09

## **SC10 The Birch Bark Canoe: Navigating a New World**

**Barbara Bowen, Manitoba Aerospace**  
**Human Resources Council; Randy**  
**Hermann, Engineering Access Program,**  
**U of Manitoba; Pauline Broderick,**  
**Faculty of Engineering, U of Manitoba**

Repeated session.

The session will showcase the DVD and Teachers' Guide package that was developed to honour the contributions of First Nations and Metis peoples as well as to educate students about the engineering, science and art of the birch bark canoe.

**Level:** 4–8 **Code:** SC10

## **SC11 Adopt-a-River**

**Michele Kading, Denis Gautron**  
**and Alain Cenerini, Save Our Seine**  
**(michele.kading@gmail.com)**

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 and identify live invertebrates. AAR kits are available to schools in the LRSD.

**Level:** 4–12 **Code:** SC11

## **SC12 Ship the Chip**

**Maria Nickel**

Students learn how engineers develop packaging design requirements, and work

in a team to evaluate the external stresses that engineers must consider when developing a package or product design. Students develop a plan, select materials, manufacture their package, test it, and evaluate their results. Student teams present their reflections to the class.

- Ready-made lesson plan for use in science class or club at school;
- Notes to hand out to students;
- Copy of lesson to work on at the SAGE session and a clean copy to take home and use
- Assessment rubrics for lesson (student & teacher);
- Participants will also build and test their designs on site to see how the experiment operates before taking it home to use in their classes

**Level:** 7 **Code:** SC12

## **SC13 Bio-Rad Crime Scene Investigator PCR Basics Kit**

**Dr. Claude Lachance and Amanda Richards, Bio-Rad Laboratories (Canada) Ltd (info\_canada@bio-rad.com)**

Which human DNA sequences are used in crime scene investigations and why? In this hands-on workshop you will learn to use the polymerase chain reaction (PCR) and gel electrophoresis to identify which suspects can be exonerated based on DNA evidence.

**Level:** 9–12 **Code:** SC13

## **SC14 Adventures in Class Flipping**

**Matthew Wiebe, Lord Selkirk School Division (matthew.wiebe@lssd.ca)**

A session describing my experiences flipping my CH30S class. Includes what went well, what didn't go so well, and what I would do differently in the future. Session is discussion based. Participants are encouraged to share their own experiences.

**Level:** 9–12 **Code:** SC14

**10:30–11:30 a.m.**  
**1 hour**

## **SC15 Hands-On, Minds-On: Engaging Youth with Science! Let's Talk Science**

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 Gr. 4–8. Let's Talk Science facilitators will lead you through multiple science-based experiences.

**Level:** 4–8 **Code:** SC15

## **SC16 How Do Scientists Think?**

**Dr. Kelly Foyle, Perimeter Institute for Theoretical Physics**

Come Explore the "Process of Science". This workshop will explore how scientists think using a models-based perspective of approaching scientific problems. An introduction to the creative process of science with hands-on activities. Each participant will receive a copy of the "Process of Science" classroom resource kit.

**Level:** 4–12 **Code:** SC16

## **SC17 Nutrients for Life Learning Gardens**

**Kent Lewarne and Ray Cochrane, Nutrients for Life Canada (klewarne@nutrientsforlife.ca)**

Repeated session.

Nutrients for Life Canada has developed a variety of Learning Resources for educators including a six lesson series called Nourishing the Planet in the 21<sup>st</sup> Century and a Learning Garden Manual. See us for details!

**Level:** 4–12 **Code:** SC17

## **SC18 It's a Snap!**

**Nusraat Masood, WISE Kid-Netic Energy, Michelle Carriere, Indigenous Outreach Officer (Nusraat.Masood@umanitoba.ca)**

Repeated session.

Learn what we have to offer Grade 6 & 9 students in our electricity workshop. Build series and parallel circuits using Snap Circuits. Build a simple motor and observe a Tesla Coil demo.

**Level:** 6 & 9 **Code:** SC18

## **SC19 Caring for our Watersheds**

**Tabitha Martens, Oak Hammock Marsh Interpretive Centre**

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.

**Level:** 7–12 **Code:** SC19

## **SC20 Climate Change Solutions for Manitoba**

**Curtis Hull, Climate Change Connection / Manitoba Eco-Network, curthull@mymts.net**

Learn about new "Manitoba Climate Atlas" computer model projections for climate change in the prairies.

Learn about Manitoba organizations who are making real progress to reduce local greenhouse gas emissions and build resilience.

**Level:** 9–12 **Code:** SC20

## **SC21 Demonstrations in Medical Physics**

**Dr. Daniel Rickey, CancerCare Manitoba**  
Repeated session.

At CancerCare, the Department of Medical Physics gives tours to high school classes. In this presentation, I discuss and show some of our demonstrations.

**Level:** 9–12 **Code:** SC21

## **SC22 Inquiry Based Physics Labs**

**Andrea Misner, STAM / MAPT / RASC**

Learn how to guide your students through inquiry based labs. Gain tips and resources to improve your labs and encourage critical thinking.

**Level:** 9–12 **Code:** SC22

## **SC23 Lab Safety Awareness: Are you Flinn Certified?**

**James Palcik, Flinn Scientific Canada (jamesp@flinnsci.ca)**

Repeated session.

This is a must-attend session for educators who are concerned about lab safety in their classroom and prep room. Flinn will discuss chemical spills, storage, fires, floods, injury and many more issues facing science teachers in Manitoba.

**Level:** 9–12 **Code:** SC23

## **SC24 The Other Curriculum**

**Kris Moroski, River East Collegiate**  
([kmoroski@retsd.mb.ca](mailto:kmoroski@retsd.mb.ca))

This session will be taking a look at strategies and activities that can help students understand concepts that are typically expected but rarely taught. Examples include the purpose of references, memorization vs understanding, test writing, etc.

**Level:** 9–12 **Code:** SC24

## **SC25 Engaging students in the Grade 10 Science classroom with the new fully curriculum-aligned Manitoba Science 10 textbook by McGraw-Hill Education**

**Sid Greenstone and Gabe Kraljevic, McGraw Hill Ryerson**

Join us as we present how our new Manitoba Science 10 resource covers all curricular outcomes and how it can be used in Grade 10 with an STSE & inquiry approach to science. Participants will get a copy of book and a Connect teacher trial card.

**Level:** 10 **Code:** SC25

## **SC26 An Introduction to Resources from BioInteractive and HHMI (Howard Hughes Medical Institute)**

**Tara Sheperd, BioInteractive and Howard Hughes Medical Institute**

Repeated session.

Have you heard of BioInteractive? How about HHMI? The educational partnership between these two advocates of the biological sciences have produced amazing short films that are current, topical, and correlated to curriculum (BIO30S, BIO40S, and AP).

**Level:** 11 & 12 **Code:** SC26

**11:30 a.m.–12:30 p.m.**  
**1 hour**

## **SC27 Design Process: A Hands-on Approach to Teaching Science**

**Gabe Kraljevic, STAM / MAPT / Garden City Collegiate**

What is the “Design Process”? Ideas for designing projects to use in your class. You

take away ideas and different approaches to teaching science that are curriculum linked. You will participate in a design process activity.

**Level:** 4–8 **Code:** SC27

## **SC28 Nutrients for Life Learning Gardens**

**Kent Lewarne and Ray Cochrane, Nutrients for Life Canada** ([klewarne@nutrientsforlife.ca](mailto:klewarne@nutrientsforlife.ca))

Repeated session.

Nutrients for Life Canada has developed a variety of Learning Resources for educators including a six lesson series called Nourishing the Planet in the 21<sup>st</sup> Century and a Learning Garden Manual. See us for details!

**Level:** 4–12 **Code:** SC28

## **SC29 It’s a Snap!**

**Nusraat Masood, WISE Kid-Netic Energy, Michelle Carriere, Indigenous Outreach Officer** ([Nusraat.Masood@umanitoba.ca](mailto:Nusraat.Masood@umanitoba.ca))

Repeated session.

Learn what we have to offer Grade 6 & 9 students in our Electricity Workshop. Build series and parallel circuits using Snap Circuits. Build a simple motor and observe a Tesla Coil demo.

**Level:** 6 & 9 **Code:** SC29

## **SC30 Caring for our Watersheds**

**Tabitha Martens, Oak Hammock Marsh Interpretive Centre**

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.

**Level:** 7–12 **Code:** SC30

## **SC31 Demonstrations in Medical Physics**

**Dr. Daniel Rickey, CancerCare Manitoba**

Repeated session.

At CancerCare, the Department of Medical Physics gives tours to high school classes. In this presentation, I discuss and show

some of our demonstrations.

**Level:** 9–12 **Code:** SC31

## **SC32 Space Balloon Launch**

**Heidi Werner, St. James Collegiate**

Hear about how the students at St James Collegiate launched a High Altitude Balloon along with 4 other Winnipeg schools as part of the Global Space Balloon Challenge. Get details about how you can send something to space with your students too!

**Level:** 9–12 **Code:** SC32

## **SC33 Hands-On Wave-Particle Duality**

**Dr. Kelly Foyle, Perimeter Institute for Theoretical Physics**

Wave-particle duality is one of the deepest, most powerful, mysteries of quantum physics. Participants will experience the electron double-slit experiment through a hands-on classroom activity. Come explore the “Challenge of Quantum Reality”. An introduction for senior physics students to the wonder and power of quantum physics. Each participant will receive a copy of “The Challenge of Quantum Reality” resource.

**Level:** 9–12 **Code:** SC33

## **SC34 Lab Safety Awareness: Are you Flinn Certified?**

**James Palcik, Flinn Scientific Canada** ([jamesp@flinnsci.ca](mailto:jamesp@flinnsci.ca))

Repeated session.

This is a must-attend session for educators who are concerned about lab safety in their classroom and prep room. Flinn will discuss chemical spills, storage, fires, floods, injury and many more issues facing science teachers in Manitoba.

**Level:** 9–12 **Code:** SC34

## **SC35 Transitioning to Outcome Based Gradebooks**

**Kris Moroski, River East Collegiate** ([kmoroski@retsd.mb.ca](mailto:kmoroski@retsd.mb.ca))

This is my take on outcome based assessment (OBA). I’ll provide an overview of my transition to OBA; including early success, failures, road blocks, and time requirements. I’ll share what I have and encourage discussions.

**Level:** 9–12 **Code:** SC35

## **SC36 An Introduction to Resources from BioInteractive and HHMI (Howard Hughes Medical Institute)**

**Tara Sheperd, BioInteractive and Howard Hughes Medical Institute**

Repeated session.

Have you heard of BioInteractive? How about HHMI? The educational partnership between these two advocates of the biological sciences have produced amazing short films that are current, topical, and correlated to curriculum (BIO30S, BIO40S, and AP).

**Level:** 11 & 12 **Code:** SC36

**1:30–3:30 p.m.**  
**2 hours**

## **SC37 CoCoRaHS: Hands on Citizen Science in the Classroom**

**Tiffany Taylor, CoCoRaHS**

**(tiffany.taylor@fbcpublishing.com)**

WEATHER REPORTING VOLUNTEERS NEEDED! A unique new weather monitoring program exists right here in Manitoba called Community Collaborative Rain Hail & Snow Network—aka CoCoRaHS.

Calling all Educators...Precipitation is important, and can be highly localized. There is a need for more hyper-local weather monitoring and data on all forms of precipitation across Manitoba. With community involvement, we can stay a step ahead of severe weather events and lessen its damaging effects...and even help save lives.

**Level:** General **Code:** SC37

## **SC38 The Birch Bark Canoe: Navigating a New World**

**Barbara Bowen, Manitoba Aerospace Human Resources Council; Randy Hermann, Engineering Access Program, U of Manitoba; Pauline Broderick, Faculty of Engineering, U of Manitoba**

Repeated session.

The session will showcase the DVD and Teachers' Guide package that was developed to honour the contributions of First Nations and Metis peoples as well as to educate students about the engineering,

science and art of the birch bark canoe.

**Level:** 4–8 **Code:** SC38

## **SC39 Circuit Board: Make and Take**

**Jen Piasecki, STAM/MAPT, Fort Richmond Collegiate, and Len Siemens, STAM/MAPT, Red River College**

Join us for a grade 9 electricity unit circuit board make and take. Construct a circuit board suitable for experimenting with series, parallel and simple combinations of light bulbs or resistors. Materials costs subsidized by STAM (all materials are included).

**Level:** 9–12 **Maximum:** 20 participants  
**Code:** SC39

**1:30–2:30 p.m.**  
**1 hour**

## **SC40 Yellow Fish Road**

**Michele Kading, Trout Unlimited Canada (WinnipegYFR@tucanada.org)**

Repeated session.

Trout Unlimited Canada is offering FREE educational programs to Winnipeg schools in the 2015/2016 school year. Fun, interactive program demonstrations cover the needs of fish, fish habitat, watersheds, and storm water pollution prevention.

**Level:** General **Code:** SC40

## **SC41 Eco-Literacy & School Gardens**

**Natalie Elizabeth, Urban Eatin' Gardeners Worker Co-op**

Urban Eatin' Landscapes is a small worker co-op of gardeners committed to using organic and holistic techniques to grow food and promote biodiversity in urban spaces. Our mission is to get children excited about the benefits of vegetable and herb gardens.

We love working with educators, parents and students to build environmentally sustainable communities through low-impact design, hands-on activities and education. We involve students in every step of establishing your school garden! At SAGE 2015 we will be presenting an overview of our environmental education package. This package comprises a variety of workshops and services to promote learning through natural building, recycled carpentry, organ-

ic gardening and inclusive games. We explore environmental sustainability topics like the soil food web through discussion in addition to supervised, hands-on building projects like compost bins. Our building and earthscaping services are intended to complement the educational content of the modules and assist your school in implementing nature-based programming at your location. Our programming will enable students to: identify plants and animals that live in our environment; employ a variety of tactical approaches to sustainability; participate in active thought and discussion about food systems and earth care; and develop an appreciation for diversity in ecosystems and people.

**Level:** K–9 **Code:** SC41

## **SC42 Invent an Alien**

**Tina Hellmuth, STAM/Winnipeg School Division**

Do you want to find out about a project that engages students in learning about planets, classifications of animals, body systems, scientific drawings, sculpture as well as develops their creativity and writing skills? Invent an alien is the project for you! Invent an Alien has students involved using the design process to create an alien that could live on a planetary destination. For 2016, it will be Pluto. This session will outline the project, and offer suggestions as to how to carry out the project in class. It will show you projects that have been done in both languages. It will also talk about the Manitoba Schools' Science Symposium's Invent an Alien competition that has been running for over 30 years, where aliens can enter and compete for medals against aliens from all over the province.

**Level:** 4–8 **Code:** SC42

## **SC43 NASA Education Space Academy: Toys In Space**

**Maria Nickel**

In this investigation students play the role of scientists and engineers in examining the physics of popular toys and games in the classroom and try to answer the question: Will this toy work in microgravity? Students connect with NASA Toys in Space VIDEOS and watch the results of the toys in space. In the process of learning about the

results, the videoconference identifies how exploration and science benefit Earth, the connection between their toys' experiments and how that can lead to a career at NASA, along with discussing the physics involved with the toys in space experiments.

**Level:** 6–9 **Code:** SC43

## **SC44 Tomatosphere™: An 'Out-of-this-World' Science Program**

### **Let's Talk Science**

Join Let's Talk Science and learn how teachers are effectively using the award-winning Tomatosphere™ program to help teach science inquiry skills using the exciting context of space exploration!

**Level:** 7–10 **Code:** SC44

## **SC45 Science, Fashion, and Fun! Genes in a Bottle™ Kit**

**Dr. Claude Lachance and Amanda Richards, Bio-Rad Laboratories (Canada) Ltd (info\_canada@bio-rad.com)**

Repeated session.

Isolate your own DNA and capture your unique essence in a stylish necklace! From cell structure to genetics to the chemistry of life, this workshop integrates multiple life science standards in a single lesson.

**Level:** 9–12 **Code:** SC45

## **SC46**

### **Measuring Planck's Constant**

**Brian Dentry, MAPT/Miles Macdonnell Collegiate**

Planck's constant is a universal constant that lies at the heart of quantum physics. Using a simple electronic circuit, Planck's constant will be measured with accuracy. From this, Einstein proposed that light delivers its energy in chunks.

**Level:** 9–12 **Code:** SC46

## **SC47 Teaching STEM with Virtual Robotics**

**Chris Schulz, Dr. Jack Peterson, and Tim Shea, Training & Support at Cogmation Robotics In chris.s@cogmation.com**

Repeated session.

If you've ever thought about using robots to teach STEM, then you must see the

Virtual Robotics Toolkit! Design, program, and simulate virtual replicas of the LEGO MINDSTORMS® robots using the exact same tools used to control the real thing.

**Level:** 9–12 **Code:** SC47

## **SC48**

### **Where Do We Go From Here?**

**Kris Moroski, River East Collegiate**

A brief look at current technologies in the classroom and what's fast approaching. We will discuss how these tools are currently being utilized in the classroom and what changes they will allow teachers to make in order to enhance student success.

**Level:** 9–12 **Code:** SC48

**2:30–3:30**

**1 hour**

## **SC49 Yellow Fish Road**

**Michele Kading, Trout Unlimited Canada (WinnipegYFR@tucanada.org)**

Repeated session.

Trout Unlimited Canada is offering FREE educational programs to Winnipeg schools in the 2015/2016 school year. Fun, interactive program demonstrations cover the needs of fish, fish habitat, watersheds, and storm water pollution prevention.

**Level:** General **Code:** SC49

## **SC50 Getting students involved in Science Fair projects**

**Tina Hellmuth, STAM/Winnipeg School Division, and Grant Fisher-Smith, STAM/St. James School Division**

Following the scientific method is an important part of the curriculum. Getting students to use the method to ask testable questions and get answers that are reliable requires good coaching. This session run by two teachers who have had extensive experience in judging projects as well as working with students who go on and compete in divisional, provincial and national fairs, will offer suggestions on how to layer your program to make students successful. It will allow you to look at projects created by students, look at resources and support materials, and also engage you in some fun testing!

**Level:** 4–8 **Code:** SC50

## **SC51**

### **What's New in Science?**

**Dr. Kelly Foyle, Perimeter Institute for Theoretical Physics**

Join us as we look at the top 10 coolest science news items over the past year. This session will explore a variety of cutting-edge science breakthroughs. Perimeter resources will be distributed.

**Level:** 4–12 **Code:** SC51

## **SC52**

### **Strategies and Resources to Promote Deep Learning and Engage Students in Science**

**Let's Talk Science**

This presentation by Let's Talk Science will illustrate how to use CurioCity's free learning strategies to address curriculum outcomes in the Grade 8, Senior Science 1, Senior Science 2 and Grades 11 and 12 biology, chemistry and physics courses.

**Level:** 8–12 **Code:** SC52

## **SC53 Teaching STEM with Virtual Robotics**

**Chris Schulz, Dr. Jack Peterson, and Tim Shea, Training & Support at Cogmation Robotics In chris.s@cogmation.com**

Repeated session.

If you've ever thought about using robots to teach STEM, then you must see the Virtual Robotics Toolkit! Design, program, and simulate virtual replicas of the LEGO MINDSTORMS® robots using the exact same tools used to control the real thing.

**Level:** 9–12 **Code:** SC53

## **SC54 Science, Fashion, and Fun! Genes in a Bottle™ Kit**

**Dr. Claude Lachance and Amanda Richards, Bio-Rad Laboratories (Canada) Ltd (info\_canada@bio-rad.com)**

Repeated session.

Isolate your own DNA and capture your unique essence in a stylish necklace! From cell structure to genetics to the chemistry of life, this workshop integrates multiple life science standards in a single lesson.

**Level:** 9–12 **Code:** SC54

## REGISTRATION

### Important: Online registration

[www.stam.mb.ca](http://www.stam.mb.ca)

For **new**, **cancelled** or **full** sessions, visit the STAM website at: [www.stam.mb.ca](http://www.stam.mb.ca).

### Registration/Membership Information

\*\*\*\*\*PLEASE READ CAREFULLY\*\*\*\*\*

**Note:** 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 23, 2015. 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](http://www.stam.mb.ca).

### STAM Membership 2015–2016\*

**General.....\$20**

**Full-time student.....\$20**

\*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

### Full Day Conference Fees

**STAM Member.....\$40**

**Non-Member.....\$59**

**\*Full-time student (non-member)..\$35**

\*(free with STAM membership)

### Half Day Conference Fees

**STAM Member.....\$20**

**Non-Member.....\$39**

**\*Full-time student (non-member).\$20**

**\*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.....\$15**

(Not available at off-site sessions)  
(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 cost for the conference, including a STAM membership, is **\$60.00** (\$75.00 with lunch). For students who pay for a STAM membership, your total cost is \$20.00 (for the STAM membership—no charge for conference).

### Late and On-Site Registrations

Registrations after **October 1** or completed on-site will be assessed a \$10.00 fee.

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

**On-site payment is cash or cheque only.**

### How to Register:

- Please go to the STAM website at [www.stam.mb.ca](http://www.stam.mb.ca) and follow the link for online registration.
- Please check website for session updates on new, full sessions and cancelled sessions.
- Late registrants will be charged a \$10.00 administration fee.
- Conference fees and STAM memberships are non-refundable.
- **Remember:** Registration is on a first-come basis and some sessions fill up quickly.