

# Science SC PD Day Agenda, Feb 17, 2017

Registration opens January 17 and closes January 31. Please go to the following website to register: <http://ocdsb-osstfsciencepd.wikispaces.com/Home>.

Time	Description
8:30 am – 9:15 am	Registration /Networking /Exhibitor Hall/Snacks
9:15 am – 10:30 am	Keynote Address
10:30 am – 11:00 am	Networking /Exhibitor Hall/Snacks
11:00 am – 12:15 pm	Session A
12:15 pm – 1:00 pm	Networking /Exhibitor Hall/Snacks
1:00 pm – 2:15 pm	Session B

## Keynote Address

Name	Title	Description
Dr. James Fraser (Queen's)	Going beyond interactive: exploiting research-based instructional strategies to better help your students	Flipped classrooms, peer instruction, team-based learning – who has time for this stuff and will it help my students anyway? What the education literature does make clear is that active learning beats hands-down “teaching by telling” in all STEM fields. This session will explore some practical approaches that you can use in your classroom and help you develop your active learning network.

Participants will attend two sessions, one from each of the lists (A and B) provided below.

### Session A

	Name	Title	Description
1	Karen Dion & Bogna Haddad	Developing Transferrable 21st Century Competencies - A focus on Metacognition	Strengthening self-awareness and learning skills empowers and motivates students to drive their own learning. You will leave this sharing session with ready-to-implement, easy to embed tools to enhance and track students' metacognitive development.
2	Grandmother Francine	From Water Ceremony to Water Filters	Though the teachers wish to honour the recommendations of the Truth and Reconciliation Commission many of us do not feel well equipped to do so. Grandmother Francine's presentation will help bridge that gap and highlight how First Nations knowledge can be integrated with the curriculum
3	Daryl Martella	Walking into retirement with a plan	Do you think you will have enough savings to live the kind of retirement lifestyle you want? Here we'll shed some light on what your finances could look like in retirement, in order to uncover potential income gaps, and then propose solutions to fill them in.
4	Shontelle Prokipcak	Mental Health in the Classroom	Mental Health and Addiction Services of Ottawa will present on Mental Health Issues in the Classroom. What teachers can do to support positive mental health in the class. Using strengths based methodology and mindfulness techniques that support both teachers and students while taking into consideration the group dynamic and the focus on subject material. This will be an interactive and hands on learning experience for participants and hand outs of tools will be provided for direct use in the classroom.
5	Robert Dick	The Dark side of Light	The Biology and behaviour of all life differs between the day and night. Artificial light confuses biology, which causes unforeseen consequences. We

			will introduce the resulting problems, and will present solutions. The extent of this confusion may surprise you and your students – putting human activity into a different context.
6	Dr. Robert Ben (uOttawa)	Meeting the needs of modern cellular therapies with novel cryoprotectants	Cryopreservation is a common strategy for the preservation of various cells, tissues and biomaterials. Unfortunately, in the absence of a cryoprotective agent (CPA) significant cellular damage occurs. Our early work has led to the development of carbon-linked antifreeze glycoprotein (C-AFGP) analogues that exhibit “custom-tailored” antifreeze activity. These novel cryoprotectants will enable modern cellular therapies.
7	Khalhela Zoeller (PhD candidate, uOttawa)	Earth's Processes Past, Present, and Future: From formation, to extraction, to our homes	Examining mineral deposits formed from volcanic activity and other geological processes; how to present these concepts to students without having to deal with annoying terminology
8	Dr. Jenny Bruin (Carleton)	Stem cells for treating and understanding diabetes.	Pluripotent stem cells can be directed into insulin-producing beta cells and transplanted into patients with diabetes. My lab also uses this stem cell differentiation model to investigate how environmental factors regulate the formation, survival, and function of pancreatic beta cells in an effort to understand the pathogenesis of diabetes.
9	Janet Nadeau	Climate Change and Arctic Ecosystems	Ms. Nadeau will present her experiences at the Earth's Poles, and how Arctic and Antarctic Ecosystems have been or will be affected by Climate Change.
10	Dr. Brian Frank (Queen's)	Create, Collaborate, Communicate: What your former science students do in Engineering	The goal of this session is to highlight the goals of modern engineering programs and how concepts and skills from secondary school are expanded. We will discuss the instructional goals and teaching approaches used in university engineering programs, including the increased emphasis on complex problem solving, critical thinking, communications, and teamwork, and highlight some of the tasks completed by your former students!
11	Maureen Milette (Canadian Blood Services)	Learning to Save Lives	Learning to Save Lives is an initiative from Canadian Blood Services that was developed to support educators by providing information that can be used in instruction/learning about concepts related to blood, stem cells, and tissue and organ donations. The intent is to encourage learners to be involved proactively both in promoting this social responsibility to others (family, friends, peers, ...) and in becoming donors when they are of age to do so.
12	Sue McKee (Lets Talk Science)	Session A: Hands-on science activities for Grade 9 and 10 students with a focus on applied curriculum links	In this workshop we will present a variety of curriculum-linked hands-on activities using inexpensive materials that you could easily do with your class. We will focus on the applied strand but link to the academic strand. This workshop is interactive. Where possible lesson plans will be shared with participants.

## Session B

1	Grandmother Francine	From Water Ceremony to Water Filters	Though the teachers wish to honour the recommendations of the Truth and Reconciliation Commission many of us do not feel well equipped to do so. Grandmother Francine's presentation will help bridge that gap and highlight how First Nations knowledge can be integrated with the curriculum
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6	James Fraser	From manufacturing better cars to sensing gravitational waves: it's just a question of phase	Invented by Michaelson in his (failed) attempts to observe the ether drift, the interferometer can measure very small changes in path length due to interference of a light beam with a replica of itself. We exploited this technique to solve a long standing problem in laser-based manufacturing: namely measuring and controlling the cutting depth of an intense cutting beam. On a much bigger scale, with an interferometer 12 orders of magnitude more precise, the LIGO group recently announced the first observation of gravitational waves.
7	Jasmine Larocque, Jenn Bancej, Paris Vasiliou	Spiralling junior science courses	Project to develop cycled units in junior courses to revisit concepts; Jenn is piloting with 2P this semester
8	Andrew Cumberland	What's up with MASS?	This session will look into one of the strangest concepts of nature - MASS. We think of mass as the quantity of stuff, but that is just a starting point to a more mysterious journey that is at the heart of understanding everything. Matter is not made of a substance, so how can it be the quantity of stuff?
9	Mike Porter	Earth Sciences Sharing Session	Teachers will be sharing resources they use to teach the SES4U course. Other teachers interested in the Earth and Space Science strand are welcome to attend – please contact Michael Porter (michael.porter@ocdsb.ca) for further info as there will be some coordination of presentations before the session.
10	Shane Williams & Rola Wansa	Easy technology for teaching	This session focuses on the use of easy-to-implement technology for planning lessons, teaching and student review. Technologies discussed will include the on-line planning software Plan Board, online quiz program kahoot, the online student review software quizlet and the use of phone based pdf scanners. The session will include a brief outline of the 4 technologies but will allow participants to use the technologies to complete simple tasks. A one-page how to document will be provided for each technology so you can implement them right away with your classes.
11	Sue McKee (Lets Talk Science)	Hands-on science activities for Grade 11 and 12 students with a focus on applied curriculum links	In this workshop we will present a variety of curriculum-linked hands-on activities using inexpensive materials that you could easily do with your class. We will focus on the applied strand but link to the academic strand. This workshop is interactive. Where possible lesson plans will be shared with participants.
12	Noel Alfonso, Paula Piilonen & Paul Sokoloff (Museum of Nature)	Beyond the Gallery: current research at the Canadian Museum of Nature.	Natural history museums combine fieldwork, collections-based research, and public outreach to further our understanding, and to increase Canadians knowledge on, the world around us. Three researchers from the Canadian Museum of Nature will share their work, and show participants how a bunch of “dusty old collections” are vitally important today.