THE PUBLIC EDUCATION AND OUTREACH PROGRAM AT THE CENTRE FOR PLANETARY SCIENCE AND EXPLORATION. P. P. Patel[1] and G. R. Osinski[1], [1]Centre for Planetary Science and Exploration, Western University, Western Science Centre Room 121, Faculty of Science, London, Ontario, N6A 5B7 Canada (cpsxoutreach@uwo.ca).

Introduction: The public education and outreach program at the Centre for Planetary Science and Exploration (CPSX) at Western University has seen steady growth in development and expansion of the program with focus on planetary science and space exploration. The vision for CPSX is "To strengthen and grow the Canadian space community through inspiring and training the next generation of scientists and engineers.". The outreach program shares this vision and is guided by the following objectives: i) offer educational resources to teachers and educators, ii) encourage and inspire students to consider career opportunities in science by engaging them in activities related to planetary science and space exploration, iii) raise awareness and general interest of the public in science through planetary science and space exploration events, and iv) train graduate students in teaching and outreach practices.

The current program offered can be divided into three broad categories: i) training, ii) public event and activities, and iii) school visits and academic programs.

Training. Training activities are one of the most critical activities of the program. The training category encompasses three major groups which fall into the following areas: Teacher training, Graduate student and Conference attendance. Teacher training provides educators with the knowledge and resources in planetary science and space exploration. Graduate student training prepares them with communication, presentation and teaching skills. Conference attendance allows to stay up-to-date with teacher needs and outreach activity programming as well as build network and foster collaborations with local and national organizations.

Public events & activities. The public events and activities focus on emphasizing on research conducted within CPSX as well as Canada in planetary science and space exploration to the public. This is subdivided in public events and field outreach. Public events include regular or yearly programming (such as CPSX Space Camp and Western Worlds podcast) as well as one-time events (such as Analogue Mission public night). The field outreach allows to inform local communities about the research being conducted in the area and to increase the visibility of science in the community.

School visits and academic programs. The academic activities, based on the Ontario science curriculum, have been developed with the support of local school board and educators. Three types of programs are being offered in school visits: i) Activity based, ii) Inquiry based, and iii) workshop based. Inquiry based programs are designed to follow the inquiry learning model putting participants in charge of their own learning. Activity based programs have two components: presentation and hands-on activity. Several different inquiry based labs and hands-on activities have been combined into themed workshops. This programming is the most popular amongst all the programming in CPSX.

Current activities: Since its inception, a large number of activities have been developed and conducted by CPSX in various settings.

Training. CPSX offers teacher training workshops through various avenues such as conferences. These workshops allow teachers to participate in the hands-on activities, which are based on the curriculum, as well as receive educational resources to be used in classrooms. Last year, 45 teachers participated in the workshop hosted by CPSX at Science Teachers' Association of Ontario (STAO) conference. Graduate students have lead numerous workshops in classrooms as well as attended and presented in conferences such as STAO, and Royal Astronomical Society of Canada (RASC)-Annual General Meeting.

Public events & activities. CPSX organizes and hosts various public events throughout the year, including Asteroid Day, International Observe the Moon Night, Science Literacy Week. Since 2012, CPSX has been producing bi-weekly space science and technology themed podcast, called Western Worlds, meant for the public. Five seasons have aired of the podcast and currently in production phase of sixth season. In 2016, CPSX launched a space science and technology themed summer camp (called CPSX Space Camp) for children 9 to 14 years of age. 50 campers participated in the pilot program (Figure 1).

Figure 1: Campers posing with their telescope after a telescope building activity at CPSX Space Camp.

School visits and academic programs. CPSX currently offers total of nine activities and workshops as part of the program. This includes seven single period presentations, which can be combined with six hands-on activities and two multi-period inquiry based labs. Topics include: Impact Cratering, Rocks from Space, Mining Space, Hazards and Challenges of Space Exploration, Planetary Landscapes and Mapping, The moon etc. All the materials are available on our website for the educators to use (cpsx.uwo.ca/outreach).

Future activities: There are several future activities in planning. This includes developing of more inquiry based labs, several single period activities and presentations, offering more teacher training workshops, hosting more public events as well as collaborating and partnering with other departments within the university as well as other organization. CPSX is expanding the summer camps to 8 weeks in 2017, accommodating 200 campers and will introduce two themes for the camp. Sixth season of Western Worlds is in the final phase of production and is set to launch at the end of January 2017.

In addition, Interactive Mapping of Mars (iMars), a digitally enhanced learning activity, is in its final phase and will be ready to launch soon. iMars is an online activity where participants plan and design a rover mission to Mars based on the mission goal. CPSX's Impact Earth project is in its early phase of development. This project will combine several components such as hands-on activity, inquiry-based lab, citizen science project and teaching kits. Using the experience from the Analogue mission, CPSX is currently developing activity to simulate analogue mission using Lego kits. A pilot workshop using the Lego kits was held during the CanMars Analogue Mission Public Night (Figure 2).

Figure 2: Participants are building rover from the Lego kits at the CanMars Analogue Mission Public Night.

Reach of the program: The program has seen considerable growth in the past two years. In the year 2014-2015, 1923 participants were reached through 26 events. In the year 2015-2016, the program reached 5783 participants through 42 events. The number of events organized as well as the number of of people reached has gone up significantly from the year before. Between September 2016 and December 2016, 18 events have been conducted reaching 2869 students, teachers and members of public.

Assessment. Feedback from teachers, participants and graduate students is crucial in assessing the success of the program. The participants of the program are asked to fill out pre-activity and post-activity feedback forms, while the teachers are requested to fill out the feedback form after each event, thus instantly receiving feedback for all the events.

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