

Executive Summary



The Mission X: Train Like an Astronaut Challenge was developed in 2011 to encourage proper exercise and nutrition at an early age by teaching young people to live and eat like space explorers. The strong correlation between an unhealthy childhood diet and adolescent fitness, and the onset of chronic diseases as an adult is the catalyst for Mission X.

Mission X is dedicated to assisting people on a global scale to live healthier lifestyles and learn about human space exploration. The Mission X: Train Like an Astronaut 2015 (MX15) International Challenge hosted almost 40,000 children on 800 teams, 28 countries affiliated with 12 space agencies. The MX15 website included 17 languages.

MX15, the fifth annual international fitness challenges sponsored by the NASA Human Research Program worked with the European Space Agency and other space agencies from around the world. In comparison to MX14, MX15 expanded to include four additional new countries, increased the number of students by approximately 68% and the number of teams by 29%. Chile and South Korea participated in the new fall Astro Charlie Walk Around the Earth Challenge.

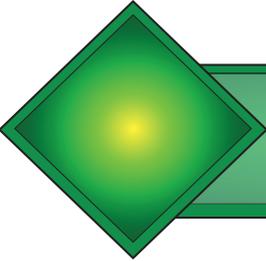
Pre-challenge training materials were made more readily available from the website. South Korea completed a prospective assessment of the usability of the MX content for improving health and fitness in 212 preschool children and their families.

Mission X is fortunate to have the support of the NASA, ESA and JAXA astronaut corps. In MX15, they participated in the opening and closing events as well as while on-board the International Space Station. Italian Astronaut Samantha Cristoretti participated as the MX15 Astronaut Ambassador for health and fitness providing the opening video and other videos from ISS. United Kingdom Astronaut Tim Peake and US Astronaut Kate Rubins have agreed to be the MX Ambassadors for 2016 and 2017 respectively.

The MX15 International Working Group Face-to-Face meeting and Closing Event were held at the Agenzia Spaziale Italiana (ASI) in Rome, Italy. A record number of twenty-eight countries participated. Austria and Norway have offered to host the 2016 and 2017 working group meetings.

MX16 planning began with the working group meetings and areas of improvement will include another second early challenge to accommodate countries in the Southern Hemisphere, recommended changes to the MX website, development of a more defined approach to metrics, a change to the format of future MX International Working Group meetings, and proposed new activities to be developed by the MX International Educator Working Group. We look forward to welcoming many new participants in 2016!

GO MISSION X!



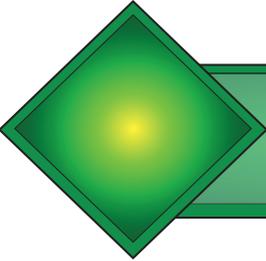
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Introduction

Mission X: Train Like an Astronaut continues to be a relevant, essential NASA Human Research Program project worldwide. Conditions of pediatric overweight and obesity remain the number one child health concern in the United States based on the University of Michigan, C.S. Mott Children's Hospital National Polls in 2014 and 2015. Also these concerns continue to be one of the most serious public health challenges on a global scale. (1, 2).

This U.S. poll is taken annually to help inform intervention program priorities. The survey is conducted by GfK Custom Research, LLC. The 2015 survey completion rate was 58% with + 1-4% point margin. The prevalence of pediatric overweight and obesity has started to level off from its multi-decade long rise in some populations, mainly in high-income, ages 2-5 years old populations (3-4).

Multiple studies have called for more research and assessment in low to middle income urban populations (3-6). The focus specifically needing to be on sub-groups of girls and Hispanic cohorts in low-income urban setting. Other setting that needs to be looked at is the family environment with an emphasis on selection and consumption of healthy foods as well as increased family focused daily physical activity (5, 7). The review of prevention programs by Wang et.al. (7) considered an extensive set of publications and categorized them into sub-groups (schools, home, primary care, community, and child care settings).

Key findings were that the majority of the studies were conducted in school-based settings. The most effective school-based studies included home involvement. The

data on other settings was limited necessitating further research and emphasis. Future studies were outlined with greater emphasis on evaluation of non-school setting effectiveness using new technologies and innovative strategies such as social media and involvement in urban planning.

A recent series of articles addressed pediatric obesity with a focus on enhancing healthy growth strategies, avoiding promotional efforts that may jeopardize consumption of healthy products and expanding involvement of the food industries, as well as, greater citizen engagement in promoting healthy lifestyles (4, 8, 9). It was emphasized that a multi-faceted, top-down campaign to prevent pediatric obesity and build a stronger grass-root community involvement will be needed to ensure sustainability of innovation programs that are cost-effective.

A single approach to living a healthy lifestyle does not work for all settings and communities. Flexibility and various methods to achieve the goal of increasing daily physical activity and making healthy food choices while having fun is key. Intervention programs need to allow for implementation at the lowest possible cost in schools, after-school, and community settings, as well as, in the home to get the broadest reach across different social-economic settings.

Lastly, findings about the influence of social norms on the overall view of pediatric obesity was completed. The study by Wang et.al. (10) looked at the effects of social norms on body mass index (BMI) growth and the consumption of fruits and vegetables. The study design used a model to look at longitudinal data col-

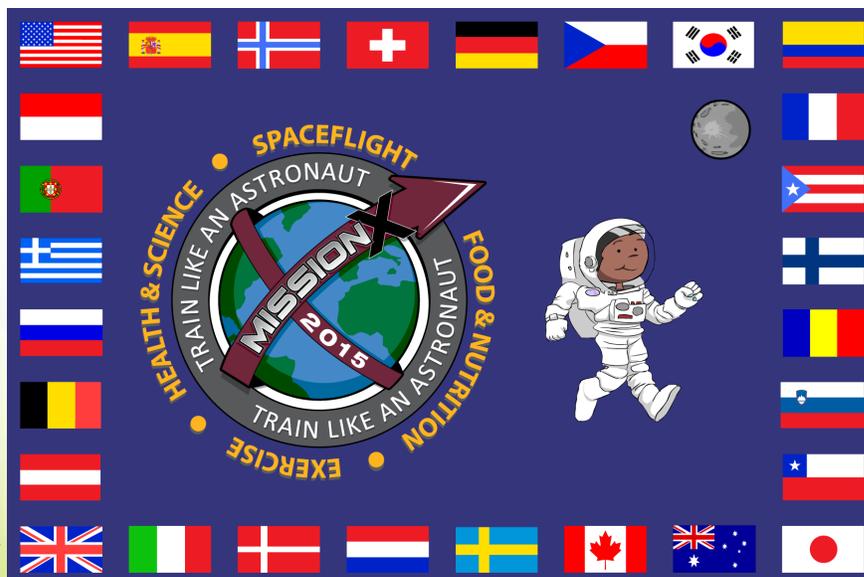
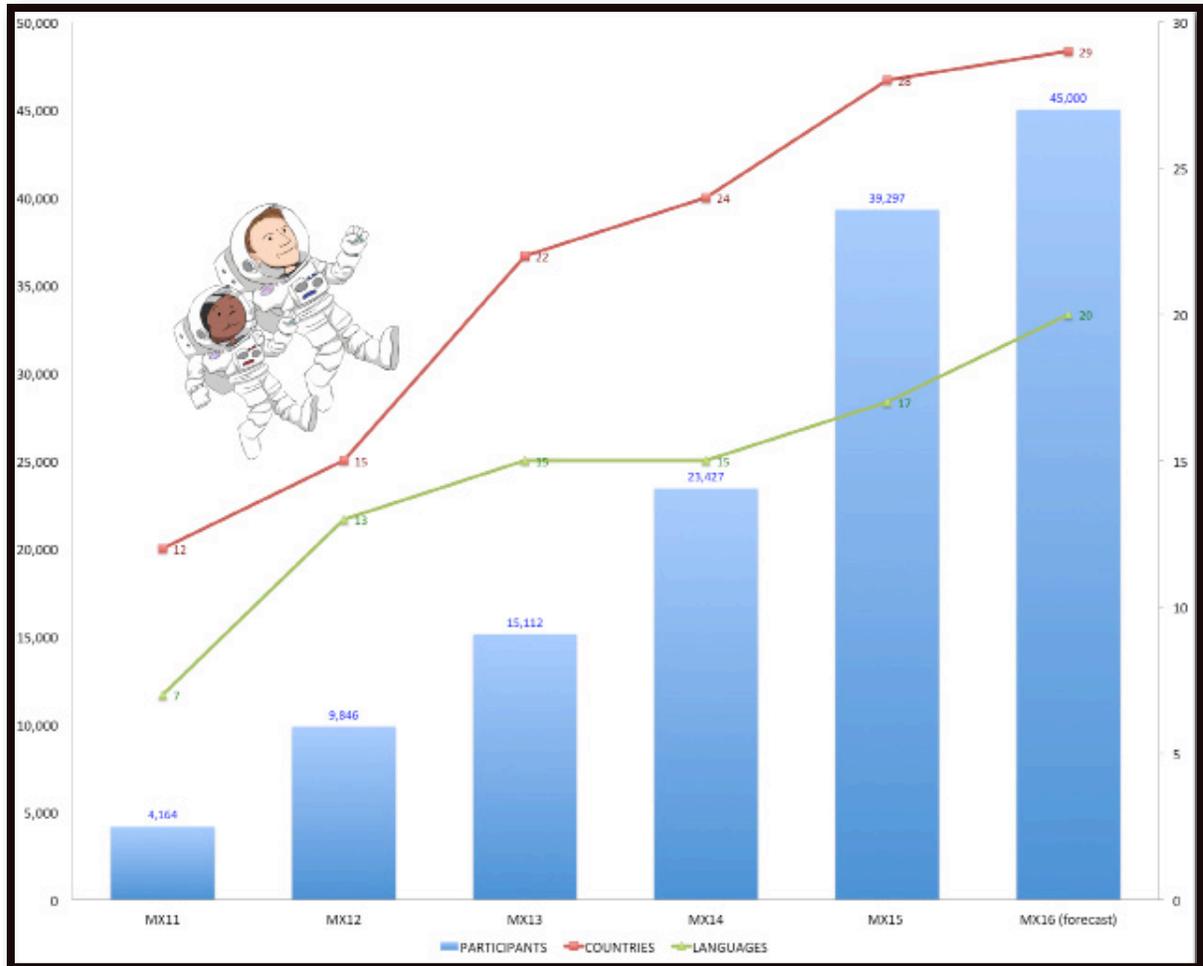
lected from the Early Childhood Longitudinal Study-Kindergarten Cohort. Focus was on a group of 5th and 8th grade students. It was found that social norms had influence on BMI growth in boys but findings were unclear when it came to social norms influencing the consumption of fruits and vegetables.

Overall, the current literature continues to support the need for invention efforts by all levels of support from government, community, schools, industries and family. Headway is being made in stemming the rise in obesity. To help better define the target sub-populations that most needs assistance, there is a call for continued survey and assessment of the affectivity of intervention programs used. MX strives to support the effort to combat childhood overweight and obesity by inspiring the next generation of space explorers to live a healthy life in body and mind.



Mission X Current Status

MISSION X GROWTH TRENDS



| Country | Children | Teams | Adults | Sites | Lead Space Agency | Partners |
|----------------|----------|-------|--------|-------|---------------------------------|--|
| Australia | 213 | 2 | 3 | 2 | | Victorian Space Science Education Centre (VSSEC) |
| Austria | 401 | 19 | 38 | 9 | ESA ALR/FFG | Austrian Planetarium Society GOP RUAG Space Museum of Natural History ARS Electronic Centre |
| Belgium | 92 | 3 | 3 | 3 | ESA | Euro Space Center |
| Canada* | 306 | 5 | 7 | 5 | | |
| Chile | 0 | 0 | 0 | 0 | | Universidad de Talca |
| Colombia | 1389 | 57 | 171 | 16 | CCE | Fundación Ciudad Horizonte 2050 |
| Czech Republic | 233 | 12 | 7 | 6 | ESA Czech Space Office (CSO) | |
| Denmark | 867 | 31 | 28 | 26 | ESA | Tycho Brahe Planetarium Danish Ministry for Innovation, Education and Science |
| Finland | 328 | 16 | 20 | 16 | ESA | ESERO Nordic-Norway Resource for mathematics, science and technology in schools, CLL, Åbo Akademi University |
| France | 2036 | 82 | 107 | 60 | CNES | Cité de l'espace (Toulouse) |
| Germany | 496 | 21 | 15 | 14 | ESA DLR | DLR School Lab, Cologne German School of El Paso |
| Greece* | 417 | 4 | 14 | 3 | ESA | Eugenides Foundation Planetarium |
| Indonesia | 56 | 4 | 14 | 3 | | Pekanbaru |
| Italy | 1520 | 72 | 151 | 21 | ESA ASI | Agricultural Research Council |
| Japan | 1432 | 11 | 70 | 11 | JAXA | Tsukuba Young Astronauts Club Tsukuba Board of Education Kawagoe Board of Education Medical Society of Itabashi City, Togo Town |
| Netherlands | 375 | 15 | 20 | 11 | ESA Netherlands Space Office | Techniekpact Collegetour Nemo Science Center |
| Norway | 142 | 3 | 3 | 2 | ESA | Nordic European Space Education Resource Office Norwegian Centre for Space-related Education Educational Consultant Hege-Merchrestromdal |
| Portugal | 419 | 18 | 18 | 9 | ESA | Ciencia Viva-Agencia Nacional Para a Cultura Científica e Tecnológica ESERO Portugal University of Lisbon, Faculty of Human Kinetics |

Mission X Current Status

| Country | Children | Teams | Adults | Sites | Lead Space Agency | Partners |
|---|----------|-------|--------|-------|---------------------------|---|
| Puerto Rico | USA | USA | USA | USA | NASA | |
| Republic of Korea* | 212 | 8 | 11 | 3 | | Korea Institute of Child Care and Education (KICCE) |
| Romania* | 480 | 21 | 49 | 3 | ESA | |
| Russia | 0 | 0 | 0 | 0 | | |
| Slovenia | 0 | 0 | 0 | 0 | ESA | Slovenian Centre of Excellence for Space Sciences and Technologies (SPACE-SI) |
| Spain | 1034 | 46 | 62 | 19 | ESA | Universidad Politecnica de Madrid ImFINE research group Madrid Council Astronomy Center from Huesca (ESPACIO 0.42) European Space Astronomy Center (ESAC) |
| Sweden | 549 | 18 | 36 | 13 | ESA | Teknikens Hus in Lulea Nordic ESERO Swedish National Space Board The National Agency for Education |
| Switzerland | 100 | 5 | 5 | 4 | ESA Swiss Space Office | Museum BL |
| United Kingdom (England, Wales, Northern Ireland, Scotland) | 21500 | 302 | 1000 | 290 | ESA UK Space Agency | Venture Thinking Royal Observatory Greenwich ESERO-UK Royal Aeronautical Society British Interplanetary Society UKSEDS The Parliamentary Space Committee QinetiQ University of Cambridge University of Strathclyde University of Teeside BBC Stargazing Live Technopop Kings College London Association of Science Education Conference Scouts Home Educators Networks Glasgow Science Center Manchester Metropolitan University Heinleinn Education Trust Chilled Food Association and Food and Drink Federation |
| USA (Inc PR) | 4700 | 70 | 118 | 23 | NASA | SHAPE America The Resource Center University of Buffalo |

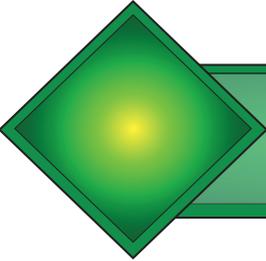


MISSION X 2015

WORKING GROUP MEETING



PicCOLLAGE



International Working Group

The MX15 International Working Group (IWG) convened for its annual meeting at the Agenzia Spaziale Italiana (ASI) in Rome, Italy during May 27-28. Sixteen of the twenty-eight MX15 countries were represented, which is the largest number of countries to attend the meeting. Overall, the face-to-face meeting was a huge success that allowed the attending countries to share their views on MX15 as well as planning MX16 and beyond. A half-day hands-on educational event was held on May 29 at a local Roma School that included kids giving MX related presentations and performing MX activities with the IWG members.

The two-day face-to-face meeting was structured around separating topics that focused the first day on the MX15 Challenge and the second day on MX16 and beyond. This format worked extremely well and allowed the topics to be kept within scope and on schedule. Additionally, having the school event on the third day allowed the IWG members that were still present to participate and immerse themselves in a local educational event. The MX 2016 IWG will likely follow this format due to the positive feedback received from the IWG.

The first day of the meeting that focused on MX15 included topics such as highlighting this year's astronaut ambassador, Samantha Cristoforetti and her research on space station as well as her MX15 kick-off video and her live closing event with three

participating countries. The next topic was hearing from each country on how MX15 was implemented in their country, including metrics, highlights, and challenges. Another topic discussed was assessment/evaluation methods to gauge the effectiveness of the project. Some assessment/evaluation tools conversed were student surveys/questionnaires, teacher surveys/questionnaires, blogs, etc. A handful of countries utilize teacher surveys/questionnaires, and even fewer use a student survey/questionnaire. A hands-on topic was an introduction to the three new MX activities: Bugs in Space, Robotic Arm, and Burpee. The IWG had a fun time performing these activities that were well-received. Topics discussed at the MX14 IWG were reviewed and the changes that were implemented in MX15 were assessed.

One of the major changes was auto-registration. This was a step in the right direction as far as increasing efficiency of team leader registration, yet there were more lessons learned generated from MX15 that will be applied in MX16. A topic that was discussed for the first time at the IWG was metrics for the MX website such as blogs, number of views per videos, total number of visitors, etc. This allowed the group to discuss and evaluate how the website is used within each country.

The second day of the meeting that focused on MX16 and beyond began with the topic of the MX16 astronaut ambassadors, Tim Peake from the UK and An-

dreas Morgensen from Denmark. A dynamic topic was country growth and building partnerships. This was a very informative discussion where countries shared their lessons learned on how to grow MX within their country. Many attendees benefited from gaining ideas to apply to their own country.

Another topic was presented by the Austrian country lead, who will host the MX16 IWG meeting in Vienna, which is greatly anticipated by the IWG. One of the lengthiest topics was the changes to the website that are coming for MX16. Specifically, a new translation error form that allows the country leads to input a to/from suggested change in translation, and a new approach to team leader registration that will transfer responsibility to each country lead to help determine if a new registrant is approved for participation.

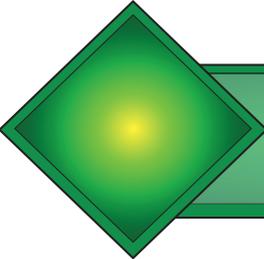
For MX16, a registration code will be required to register, and this code will be provided to the country leads who will then provide it to their team leads. The registered user will then be placed in a “Pending Users”

list, which will require that country lead to approve or delete the user. If approved, the user will be passed to the MX project coordinator for final approval.

The last topic of discussion was on survey assessment and the new NASA Space Act Agreement with the State University of New York at Buffalo (UB) Research Foundation. This new partnership will help assess the effectiveness of the MX project and possibly expand it to a family/home fitness program. The IWG was very excited about this partnership and many of the countries offered to participate in the global assessment.

This year’s IWG meeting and educational event at the Roma School demonstrated the international and cooperative efforts to make MX a success each year. The importance of health, fitness, and STEM interests that help inspire our youth continue to be a driving force behind the growth of the project. Many of the IWG members expressed the importance and benefits of the face-to-face meeting and stated their appreciation to ASI, NASA and ESA for organizing the meeting.





Global Partnership

NASA's Mission X International Efforts teaming with a Global partnership against Childhood Obesity with Exercise, Nutrition, and Space Exploration

Mission X 2015 (MX15) began the second phase of a multi-year international fitness campaign that spans MX15-MX17. Mission X: Train Like an Astronaut, an international fitness and nutrition challenge, encourages students to “train like an astronaut.” The World Health Organization’s designates childhood obesity as one of the most serious public health challenges of the 21st century; and nutrition, physical activity, and the promotion of a healthy lifestyle are the best solutions to this largely preventable problem. The aspect of astronaut training and space relevance helps to motivate participants to exercise more and, in some cases, inspires less motivated individuals to engage in activities they normally may not even try.

MX15 was honored to have European Space Agency (ESA) Italian Astronaut Samantha Cristoforetti as its 2015 fitness challenge Ambassador. Samantha opened the challenge with a special message from the International Space Station as well as provide messages throughout her stay on the space station for the participants. In addition, MX15 was proud to have other astronauts take the time to share their space flight experiences with the teams. This “brings home” the space flight relevance of living a healthy lifestyle; so we extend a very special thanks to astronauts Samantha Cristoforetti, Leopold Ey-

harts, Alexander Gerst, Paolo Nespoli, Andre Kuipers, Tim Peake, Shannon Walker, Tom Marshburn, Mike Barratt, and Richard Garriot for supporting events and activities with the kids.

MX15 spanned the globe with NASA and 12 partner space agencies, almost 40,000 participants (increase of 68% from MX14), over 800 teams (increase of 29% from MX14), 28 participating countries (increase of 17% from MX14), 2,000 adult leads (increase of 45% from MX14), and 65 international partner institutions (increase of 26% from MX14). The new MX15 country teams were Canada, Greece, Republic of Korea, and Romania. During Phase I and the first year of Phase II, combined involvement included more than 92,000 participants. MX international fitness challenge continues to be warmly embraced by a global community. The MX website is now in 17 languages. The statistics for this year’s challenge can be found in the Country Profiles Table.

MX15 completed country closing events in about half of our country teams. A wide range of techniques and venues were used. Funding and available locations for these types of closing celebrations is always a challenge for the MX leadership. Some have taken advantage of supporting institutions such as science centers or universities to host the events and to provide health, fitness, and space flight extensions for the students to participate in.

Three of the closing venues were selected by ESA to

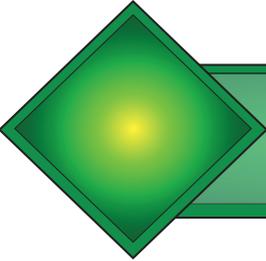
participate in 20 minute in-flight calls with ESA Astronaut Samantha Crisoforoetti. In other sites they had other astronauts, and scientist at the event to talk with the students. One venue used Google Hangout to reach sites across the country. All of them were dedicated to one last experience that was fun, informative and engaging. The feedback they was provided form adults and children alike expressed their enjoyment in the closing events.

At the closing events the students were able to celebrate a job well done, they received banners, certificates and in some cases even extra prizes. We hope all the students of the world enjoyed participating in the global fitness challenge and we hope they will continue to “train like an astronaut” forever!

MX initiated a new Space Act Agreement with the State University of New York at Buffalo’s Department of Epidemiology and Environmental Health to expand the project’s expertise in pediatric obesity. This partnership seeks innovative ways for children and their families to increase their daily physical activity, improve their understanding of good nutrition, and become excited about human space exploration. This new partnership will be instrumental for improvements in our annual surveys and overall project effectiveness in addressing the challenge of pediatric obesity.

For more information about MX, go to <http://trainlikeanastronaut.org/>.





Outcomes & Enhancements

Overall the feedback continues to highlight the serious limitation in resources to support these types of global activities and significant competition from a wide array of external groups seeking to utilize the school-based setting for implementation. Based on reporting from countries that have performed the challenge in the past, the number of participants was increased in half of them and decreased in the other half.

The good news is that the places where they had an increase it was very large. Of special note Team Italy opened up new sites in Sicily, Puglia and Veneto, and expansion of Team Portugal into the Azores. The increases in Team UK were huge with involvement in 166 cities from Scotland, Northern Ireland, Wales and England. In various teams we see expansion into such settings as home schooling, the immediate family setting and growth in the use of the MX content and activities for those with unique needs. Financial and technical support remains a challenge for many of our country teams to be able to sustain the effort from year to year. Further ideas and approaches need to be identified to assist in these areas.

Despite these limitations, our MX15 new Country Teams from Canada, Greece, Romania, and South

Korea all came on strong starting up their local sites, partnerships and activities. All of these country sites were led and supported by non-space based institutions and community and family support. Science Centers and University partnerships continue to be excellent resources for teams to run the challenge. Excellent feedback from the sites, adults, and children that supported these teams and South Korea Institute of Child Care and Education (KICCE) took on the added challenge of establishing a prospective assessment of 212 pre-school students and released the findings from that effort in March 2015. At the close of MX15 we were sad to learn that three of our countries would not be returning in MX16. Country teams from Spain, Indonesia, and Slovenia determined that they would not have sufficient support within their groups to sustain the MX fitness Challenge. We have wished them well and will always be happy for them to return in the future.

During MX15 more experience was gained with countries in which the school year does not align with holding the challenge from January through March. We have found some ways to help those countries is keep the point system and blogging system open beyond the close of the challenge in March. During MX16 we will most likely have even more sites that will need the blog available for posting beyond March and to find ways to keep their children excited about participating in MX past the close of the challenge.

Survey Outcomes

During the MX15 Challenge two new developments in project effectiveness evaluation were implemented. Both were related to a NASA Space Act Agreement with State University of New York at Buffalo's Department of Epidemiology and Environmental Health. During the MX15 Early Challenge that took place from October to December 2014, South Korea joined MX. Lead by the Korea Institute of Child Care and Education (KICCE), pre- and post-survey evaluation was completed with 212 five-year-old pre-school children. A total of 104 pre- and post-challenge surveys were received from Team South Korea after the six-week challenge. They used four of the MX physical activities and two of the educational modules. In their evaluation, it was concluded that the MX project resulted in desirable changes for preschoolers' nutritional knowledge and eating habits. The adapted MX Project was found to be feasible and effective in promoting physical activity in children and in improving their parents' attitudes and beliefs about children's physical activity.

Pre- and post-challenge surveys were solicited from Team USA participants and survey assessment was based on 184 completed pre- and post-surveys. The majority of the participants were ages 7 to 13 years old with the median age being 11. The cohort was made up of 60% girls (n=110) and 40% boys (n=75). Three sites supported this year's survey (Florida with 144 surveys, Missouri with 18 surveys, and Arizona with

23 surveys). Outcomes indicated positive improvement in behavior and knowledge about health and fitness (Table I). No significant difference was seen between boys and girls.

Overall the MX Project brought statistically significant improvement on health related life behaviors and knowledge to participating children, respectively and in total.

Preparation for the MX16 survey period will include several changes. To minimize the burden on the educators the MX16 consent and assent form will be ready for distribution at the beginning of the school year when all permission slips and authorization forms are sent to the parents. Second, a new quick checklist will be developed for the teachers to keep track of the actual activities their children participate in over the challenge to improve survey correlation between survey outcomes and components of the MX modules utilized. Third, incentives or prizes will be added in the hopes of improving the total number of completed pre- and post-surveys returned. Lastly, when a site indicates an interest in assisting with the evaluation of MX16 with their children, one-on-one Skype site training will be offered, as well as an MX Survey Process Flow Chart to make the survey experience simple and easy to implement.

| | Pre | | Post | |
|-------------|-------|--------|-------|--------|
| | mean | SE | mean | SE |
| Behavior | 24.30 | (0.20) | 25.29 | (0.22) |
| Knowledge | 3.51 | (0.09) | 4.44 | (0.11) |
| Total score | 27.8 | (0.23) | 29.82 | (0.26) |

All showed significant changes between pre- vs. post- intervention by Wilcoxon signed rank sum test.

Looking Forward to MX2016



MX is pushing on strong into Mission X 2016 (MX16). After reviewing the 23 country and agency reports we are already hard at work with improvements to make the fitness challenges even better. Our goal, working with all our partners, is to more quickly identify the total number of countries that will be participating in MX16 and get the MX16 Banner designed and released before the start of the challenge in January 2016.

We are also looking to expand the visibility of our Astronaut Ambassadors for our participants and we have designed a cartoon character of Astronaut Tim Peake so that he can train with Astro Charlie around the Earth in October through December, and can walk to the moon in January through April.

There will be many small changes to the MX website to make it work better but most significant of these changes is to improve the registration process to avoid false registrations. Another outcome of this registration process upgrade is that it improves the usability of the website for our global leadership as they work with sites within their country.

The push is on to increase the use of the MX blog with postings from teams with questions for Astro Charlie and begin an effort for sites to use the blog for their journals as they participate in the various activities and learn interesting things about science and health topics as well as space events.

Last but not least, the Walk to the Moon challenge will not stop in mid-March but rather go all the way to the end of April 2016 to allow nearly 15 weeks for all our teams to work on their fitness activities, and to include additional special events which are being planned.

In MX16 our goal is to release two new science activities and one new physical activity. New activities keep the fitness challenge model fresh and interesting for our participants that take part in the efforts from one year to the next. In project assessment we are continuing our work with the State University of New York at Buffalo's Department Of Epidemiology on changes to our annual surveys. We are also working on our first paper for Journal publication on past surveys.

Let The Challenges Begin!



Mission X 2015

COUNTRY REPORTS







Australia

213 Children
3 Adults
2 Teams
2 Cities/Regions

213 children across two sites in Victoria took part in 2015.

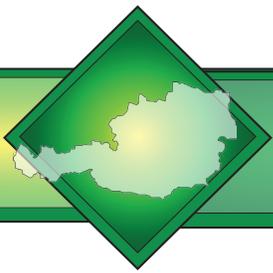
A number of factors impacted the schools take up for 2015:

Reduced support from the Victorian Space Science Education Centre

Handover of Australia coordinator role

Schools running Mission X as a alternate year program

For Mission X 2016 a alternate approach – targeting articles in teacher professional association publications



Austria

401 Children
38 Adults
19 Teams
9 Cities/Regions

Introduction

The project “Mission X – train like an astronaut” was run in Austria for the fifth time. Again the Austrian Planetarium Society (GÖP) was responsible for running the program. The planetaria in Austria helped the Mission X team in Vienna to manage the whole program. The project started in August 2014 with an extended information campaign for schools all over Austria. The Austrian Mission X website (www.mission-x.at) was again used for the application process. A teacher training has been arranged in Vienna in January 2015. During the mission 19 teams from 9 different regions/cities participated. Mid of January the teams started their training. In February and March 2015 Peter Habison visited all the teams in their schools and gave them a “space lecture”. On 24 March the In-Flight-Call to the ISS in the Museum of Natural History Vienna took place. During this highlight 326 kids came to Vienna, four of them had the chance to ask ESA astronaut Samantha Cristoforetti their questions. After the training period from January to March 2014 the Austrian final event took place at “Ars Electronica Centre” in Linz on 14 April 2015. The teams had the chance to visit the Centre and have a ride through the solar system in the so called “Deep Space”. Finally they received their Mission X Oscars in the winning ceremony.

Approach

Mission X was implemented and organized by the Austrian Planetarium Society (GÖP) and Peter Habison as head of the project. ALR/FFG as the Austrian Space Office and RUAG Space supported the project.

Major Points

- Information campaign for schools in Austria in August and September 2014.
- Kick off meeting with teachers at FFG premises in Vienna on 12 January 2015.
- Peter Habison (and to some part Kurt Anetzhuber) visited all the teams in their classrooms in February and March 2015.
- In-Flight Call to ISS with Samantha Cristoforetti on 24 March 2015, including the handover of the original flight suit from Franz Viehböck to the Museum of Natural History Vienna.
- Closing event on 14 April 2015 at “Ars Electronica Centre” in Linz

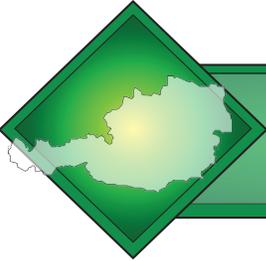
Issues

- The visit to the schools was highly appreciated by the kids and teachers. Nevertheless the financial situation to visit all 20 schools was tough.
- The IFC was an additional project within MX. It was very successful, for financial reasons the work was more or less done voluntary as an unpaid associate.
- 30 schools applied for the project, finally only 19 teams took part. Around 10 schools dropped off at the beginning of the mission, which was a rather a high percentage and unfortunate this year.

Closing Event

Austrian Closing Event: On 14 April 2015 the closing event for Austrian took place at the “Ars Electronica Centre” in Linz.

- The teams had the chance to visit the Centre and



Austria

have a ride through the solar system in the so called "Deep Space". Finally they received their Mission X Oscars in the winning ceremony.

- International Closing Event: Peter Habison as MX project manager in Austria and Michaela Gitsch from FFG participated in F2F meeting in Rome from 27-29 May 2015.

Recommendation for future Mission X events:

Involve more role models: e.g. in the field of nutrition, special cooks etc.

Willingness to support future Mission X events

Yes, a participation for 2016 is planned. F2F meeting of MXWG will take place in Austria in May 2016

Internet sites/Press Releases

- Austrian MX website: <http://www.mission-x.at>
- Austrian Mission X Facebook site: <https://www.facebook.com/MissionXAustria>
- 482 Austrian postings at MX website!
- Several Facebook and Twitter postings by Peter Habison

Mission X media clippings for Austria

Because of the In-Flight-Call, Mission X was featured in the media quite extensively in 2015:

- 23 March 15: Radio: Ö1 - Rudi Radiohund, Radio for kids: <http://oe1.orf.at/programm/400180>

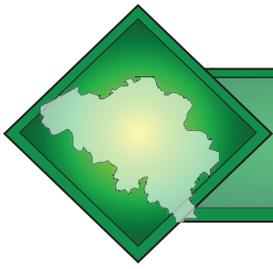
- 24 March 15: Radio: Radio Wien: Feature during morning program
- 24 March 15: Web: APA foto gallery - <http://www.apa-fotoservice.at/galerie/6527/>
- 24 March 15: Web: APA Web article - https://science.apa.at/rubrik/bildung/Schmeckt_Essen_im_Weltraum_anders_-_Kinder_fragen_ISS-Astronautin/SCI_20150324_SCI822868352
- 25 March 15: Radio: Ö1 - Rudi Radiohund, Radio for Kids: <http://oe1.orf.at/programm/400283>
- 25 March 15: Radio: Ö1 - Wissen Aktuell, 13:55 CET
- 25 March 15: TV: ORF 2 - Feature in „Heute Mittag“, 13:30 CET
- 25 March 15: Press: Article in „Heute“, daily newspaper in Vienna
- 09 April 15: Press: Article „Astronauten der Zukunft im Höhenflug“ in „Kleine Zeitung“, Carinthia
- 23 April 15: Rudi Radiohund, Radio for Kids: "Mission X"
- 8 May 15: Rudi Radiohund, Radio for Kids: "ISS and Mission X"

Dr. Peter Habison

Head of Mission X project management for Austria
Austrian Planetarium Society

Some impression from the IFC at NHM on 24 March and Final Event at AEC on 24 April 2015





Belguim

92 Children
X Adults
3 Teams
3 Cities/Regions

Approach

Euro Space Center coordinates for Belgium.

Issues

So difficult to contact schools, as usual. They have a lot of sollicitations

Participation in a closing event

Yes at the Euro Space Center. ESA astronaut Leopold Eyharts came to give the diplomes to each children





Canada

306 Children
7 Adults
3 Teams
X Cities/Regions

Introduction

The purpose of this report is to summarize the physical activities that took place during the Mission X Train Like an Astronaut challenge. The main message of this report is that Canadian Children who participated in the program have substantially improved their health and quality of life by including moderate amounts of physical activity in their daily lives. Health benefits from physical activities were thus achievable for most kids, including those who may dislike vigorous exercise and those who may have been previously discouraged by the difficulty of adhering to a program of vigorous exercise. For those who were already achieving regular moderate amounts of activities, additional benefits were gained.

This report grew out of an emerging consensus among parents, teachers and students that physical activity is a required subject to improve mental health. Moreover, health benefits appeared to be proportional to the amount of activities; thus, every increase in activity added some benefit. Emphasizing the amount rather than the intensity of physical activity offered more options for students.

The report highlights what was practiced during the challenge, as well as what was learned about promoting physical activities among adults and young people.

Approach

Mission X 2015 version Canada was mainly organized and implemented on an as per individual team basis. The leader of each team had the freedom to manage and guide their students at their own discretion based on time availability. 3 of the 5 teams involved were family organized and only 2 teams were guided by school teachers.

The promotion of the program was mostly by word of mouth, no social media was taken into consideration this time. However, the local newspaper is very interested to writing an article on the 2015 challenge.

Major Points

Children become more involved on physical activities once science and fun mixed together. Kids were more identified with Mission X for the simple fact that the program was designed by the NASA. The information provided on the web made incredible difference on understanding the importance of physical activities and nutritional education. Mission X sold the message on its own to parents, teachers especially students. Mission X 2015 for the first time in Canada unified over 300 elementary students in the city of Toronto and we expect to triple the numbers for the 2016 challenge. Mission X opened the door for a lot of kids escalating their imagination beyond their frontiers. For almost all kids who participated in the program, Mission X resembles to healthy body and healthy mind.

Issues

The coordinators of Mission X were greatly supportive and responsive to any questions or guidance for our team. However, the organization of this event could have better effect if we had the support of the local or provincial authorities such as Minister of Education, City Mayors, etc. Every child who participated in the program has now a different prospective of physical activities thank to Mission X. As a result, Team Canada is currently working with local organization, celebrities and school principals to plan and organize the 2016 Mission X challenge.

Recommendations for future Mission X events

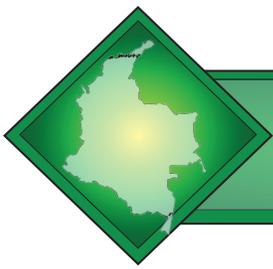
Team Canada has concluded to the following recommendations:

- Have access to the standing of every team around the world.
- Empower/encourage students to lead their own teams
- Encourage students to develop and research new physical activities that will fulfill the purpose.
- Promote through the Train Like an Astronaut site a live interaction among students. Participants of this initiative would have the opportunity to share new ideas, cultural knowledge, academics, etc.

Willingness to support future Mission X events

In fact, Canada is looking to triplicates the number of students in 2016.





Colombia

1,116 Children
171 Adults
37 Teams
16 Cities/Regions

General Profile Numbers

- Participating children: 1116 students concluded the activities out of 1389 initially registered.
(Boys=635 Girls=481)
- Participating adults: 171, including 46 Coordinators, 20 Parents, 75 other teachers, 30 higher classes students
- Teams involved: 37, out of 57 initially registered, participated up to the end.
- Schools 16 Schools out of 32 initially registered.
- Trainers: A team of 5 experienced educators.
- Training Sites: Training was conducted only in Bogotá.
- Cities involved: 12: Bogota, Facatativá, Medellin, Chinchiná, Pacho, el Peñol, Salamina, Itaguí, Bello, Rionegro, Ibagué, Zipaquirá.
- Departamentos (administrative regions): 6 i.e. Cundinamarca, Antioquia, Caldas, Tolima.

Approach

The objective of the Foundation with the implementation of Mission X is to reach, with preference, the population with fewer opportunities. The project therefore addresses public schools, locations in rural areas, distant and of difficult accessibility.

The implementation of MX in Colombia is based on the voluntary work and in-kind contributions of the participants. The Foundation CH2050 finances the direction, management and coordination of the project, with no monetary contribution from other entities.

Organisation and Implementation in Colombia

For this year campaign, MX 2015, the registration officially initiated in November 2014, according to the international planning. However, the participation of schools in Colombia has been influenced by the introduction of modifications in the Education System. The new system introduces morning and afternoon study activities and the creation of additional mandatory and optional programs. This resulted in a redistribution of the school efforts that can be assigned to complementary activities, as is the case of Mission X.

The above modifications in the education system resulted in various schools dedicating their efforts to what the teachers considered better-founded activities or to those specially tailored to the new system. On

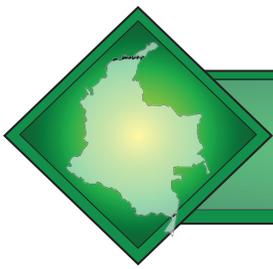
the other hand, the introduction of this new education system requires a period of accommodation that is still on going in the various schools. Some schools initiate activities around mid February. All this resulted in the registrations being extended up to first week of March and the activities delayed up to the 17 of April 2015.

Just before the initiation of the activities, a one-day leaders training campaign was organised in the Padre Manyanet School in Bogotá, with very good results and appreciation by the leaders.

Again, Schools on their side, according to their possibilities implemented in addition local Inaugural Events with their team members.

The MX Activities were spread for a period of 6 weeks, from the 9 March to 17th of April 2015. Due to the different calendar schools had to deploy an intensive effort to get to full speed and to accomplish all activities deviating from the international planning. Some schools decided to implement MX all along the school calendar and are still executing MX activities.

The Closure Event will be conducted in October together with MX 2016 Promotion Activities.



Colombia

Training

CH2050 has constituted a Team of Trainers that have participated in all previous years and known to be capable of transferring the fundamental elements of MX.

The 5 experienced teachers conducted the training campaigns in Bogota on the 7 of March 2015. In these occasions our trainers imparted detailed guidance on how to proceed for each of the 19 activities and also for those activities specially defined for Colombia related to the Astronauts Inter-Relational Skills.

Only two newcomer schools were guided through Skype and others contacted by telephone. The experienced trainers described their positive experiences and additional values of MX and provided also good number of useful recommendations to the newcomers.

Inaugural Event

As mentioned before, taking into account the delay induced by the introduction of the new education system and that some schools had already initiated activities even before our training campaign it was decided to go for individual inaugural activities at the various schools, in the same way as for MX-2014, which has proven to be a good way of introducing the students and familiarising parents and other teachers with MX activities.

Survey.

As indicated already in our 2014 Country Report, Colombia did not participate this year in the survey,

the efforts concentrated in the implementation of MX itself.

However, recognising the interest of monitoring the project by keeping track of the effectiveness of the concept and efforts Colombia remains attentive to the proposed approach to a new global survey. It is reported that, as per own initiative, some of the leaders keep track of those students that have participated in Mission X and are still in the scope of the school; after their departure they lose track of the students.

Activities Mission X.

Colombia has implemented the 19 basic activities and additional activities related to the Astronauts Inter-Relational Skills specially designed for the national context.

Following the conviction that the students and teachers need to make their efforts visible to all international participants the use of the blog has been stimulated and used as the main mean of verification of the implementation of the activities in the schools, this in addition to close contact by phone, email and visits to a number of sites.

We reiterate that the use of the blog is for Colombia a powerful tool to:

- Control the evolution of all the activities
- Closely follow the quality of the implementations of the activities
- Identify the compliance of the objectives of the Mission.

- Promote interaction between the national teams.
- Inform and promote the participation of Colombian teams.
- Increased motivation of the participants
- Integration of parents and other interested parties on the follow up of the activities.
- Demonstration of the effectiveness of the implementation of the MX project for similar cases as for Colombia, with a social benefit.

This year again, Colombia has reached the First Place in Publications on the blog with 584 publications, followed by Austria (482) and UK (216).

All these publications are catalogued and analysed against the proposed activities and the quality of the communication.

On the basis of the above publications two competitions to stimulate the action of the teams have been promoted this year and are assessed on the basis of all available data:

- The Foreign Languages. Messages should be transmitted and/or uploaded to the web page in a foreign language. This with the objective of awaking the interest in this foreign language and to transmit our message to other non-Spanish speaking participants.
- The “Higher Number of Publications and Performance” again, with the objective of stimulating the participation of the students, raising the sense of competition and showing the activities to the rest of the participating teams and to other interested parties such as parents, other teachers and interested individuals.

Further to the regular activities, it is reported that various schools continue the implementation of the project all along the school calendar and are still running some MX activities on the request of the students and of some School Directors.

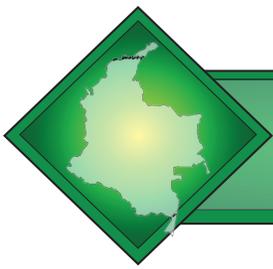
In addition to the primary elements of Mission X, Nutrition and Physical Fitness, the integration of Inter-Relational Skills has been much appreciated by the teachers and enjoyed by the students. Teachers report that this role-playing allows them to implement in an enjoyable way objectives already established by the Ministry of Education, in what refers to ethic, civic and social skills with the participating students.

With regard to the participation in international interchanges, this year again the schools have concentrated mainly in the completion of their national activities. There has not been contact with schools of other nationalities.

Major Points

The acceptance of the project by the students, teachers, parents and directors of schools remains high. Schools declare their intention to participate in MX-2016.

Being asked about their interest in participating next time in Mission X one of the teachers responded as follows: “Si con toda la energía y pasión que me inspira éste hermoso y práctico proyecto” (Yes, with all the energy and passion inspired by this beautiful and



Colombia

practical project.)

It is also reported that among other things Mission X allows the teachers to develop in their kids the sense of responsibility. This is specially stressed during the Inaugural Events in the schools where the officials publicly recognise the role of the students in representing Colombia in this international event.

In what refers to participation, it is noted that the number has been reduced this year due to the drop out of some teachers that concentrated their efforts in other new projects in their schools, following the guidelines of the new Education System.

This year, in general parents have been advised to follow the activities through the blog, their interest revealed the importance of the documentation of activities through the MX blog. Parents are reported to be more involved with the activities even those that frequently or regularly travel; they had the possibility to follow the evolution of their kids while away from home.

In what refer to the activities, Taste in Space has been very well received and considered as one of the most instructive activities.

When the leaders have been asked for the Attractive, Educative, Instructive, Extense and Difficult qualities of the activities, in average the response is as follows:

- All the activities have been considered attractive for the students.
- Climb the Martian mountain is considered the most difficult activity; this however is reported to be modulated by approach to the implementation of this activity in each school and also by the historical habits of physical activities of the students.
- Reduced Gravity, Low Fat is considered the most Educative and Impacting activity for students and parents.
- Explore and Discover is considered by most of the reporters as the most instructive activity.
- In reference to how extense the activities were experienced by the students, no special preference was manifested. It has been noted that much depends on the approach followed by the leader.

The implementation of the activities by Levels was considered an additional spice to the missions, but not it has not been fully confronted by all participating teams.

Issues

The change of approach to the registration introduced some confusion for old participants and resulted in extended effort to gather basic information that is necessary to identify the teams and schools e.g. actual location of the schools, contact telephones (main and alternative), etc. This also made it difficult to control and support the teams during the implementation of

the Mission

In addition, a certain number of spurious registrations resulted in unnecessary efforts.

The possibility to extend the deadline for registration mitigated the domino effect induced by the modification of the education system on the project.

The newly proposed approach to MX-2016 registration will help in the solution of the above issues.

On the other side, for MX-2016, the promotion of the activities, identification of participation teams, commitment by schools and training of leaders will be conducted at the end of this year, independently of the different school calendar. This will also induce an earlier and closer contact with the team leaders, which would also help in containing unforeseen situations as the one resulting this year as a consequence of the modifications of the education system.

Uploading of Reports and Media

Our teams had a period of 6 weeks to fulfil their activities. Despite of this limitation their spirit and performance in reporting their activities remained high, reaching the first place in publications, after a surge during the two final weeks.

Some schools had difficulties to load their material prior the dead line; therefore, those have been delivered to the Foundation as evidence of their participation. This is a sine qua non for the team reception of a Certificate of Participation.

Activity Punctuation.

Some Teams have uploaded their points directly on the web page however, after the closure of the uploading of the points, teams have delivered their data on the base of a spread sheet tool specially designed to collect and deliver those data. An example of these tables has been provided to NASA as a proposition for simplification of the standard forms and for distribution to all other participants.

Certificates, Badges, Flags and Banners

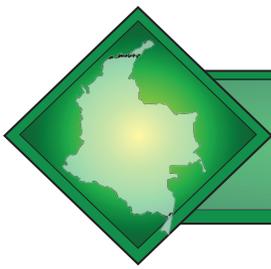
Taking into account that the Badges will not be provided anymore, these have turned in collector's items. A counted number of those in our stores will be used for very x very special cases.

Flags and Banners have been received without incident. We thank NASA for these gifts that are very much appreciated by the students and teachers and schools. We have used some flags for Special Dedication certificates that contain in half page the certificate and in the other half the MX Flag.

Not all Flags and Banners have been distributed yet. The remaining will be used for the Closure Event.

Participation in a closing event

As mentioned above, the Closure Event will be conducted in October together with MX 2016 Promotion



Colombia

Activities.

At that occasion, the certificates will be extended to the participants. We like to stress that this is only an evidence of participation to the activities and its objective is to recognise the efforts placed by the participants and to give the students an earned-souvenir of their positive experience with MX as a motivation to go forward.

In addition, additional awards associated to the nationally introduced competitions will be given to the winning participants.

Recommendation for future Mission X events

The modification of the approach to registration is necessary, introduction of a mandatory request to enter a contact telephone number will reduce the workload to control the evolution of the activities and support the participants.

On the other side, the elimination of the spurious registrations is necessary. The proposed introduction of a code will provide National Coordinators the possibility to manage more closely the registrations while still leaving the leaders the autonomy of registration through the web page.

Some Illustrative Images

Fig. 4. From the Earth to the Moon

School: Tomas Carrasquilla

Teams: De la Tierra a la Luna

Location: Bogotá D.C – Colombia

MX Log Entry: 78. Post Link: Has una caminata espacial - De la Tierra a la Luna

Fig. 5. Hydration Station

School: I. E. M. Juan XXIII- Prado

Teams: Columbia XXIII

Location: Facatativá – Cundinamarca - Colombia

MX Log Entry: 20. Post Link:

MI HERMOSA TRIPULACIÓN COLUMBIA

XXIII-MARZO. 03 -2015

Fig. 6. Taste in Space

School: Rodrigo Lara Bonilla

Teams: Phoenix

Location: Ciudad Bolivar – Bogotá D.C – Colombia

MX Log Entry: 71. Post Link: sabores y saberes

Fig. 7. Building an Astronaut Core

School: Cundinamarca

Teams: Luna Llena

Location: Bogotá D.C – Colombia

MX Log Entry: 400. Post Link: desarrollar un núcleo muscular de astronauta

Fig. 8. Get on your Space Cycle

School: San Agustín

Teams: Astroviajeros 2015

Location: Facatativá – Cundinamarca - Colombia

MX Log Entry: 577. Post Link: SÚBETE A TU BICICLETA ESPACIAL

Fig. 9. Jump to the Moon

School: Instituto Técnico Agrícola

Teams: LOS INVENCIBLES

Location: Pacho – Cundinamarca - Colombia

MX Log Entry: 104. Post Link: Saltar A La Luna

Conclusion

In the mind of the educators Mission X is the multidisciplinary project that stimulate the students and makes them more receptive to different education topics.

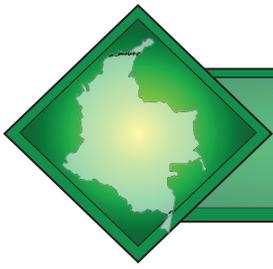
For the students this is another opportunity to enjoy and learn in an easy way.

As mentioned before, the appreciation of the project is high and schools manifest their interest to continue participating in coming occasions.

We thank NASA and ESA for the continued effort to promote and expand this project.

R. LORZA-PITT
DIRECTOR MISSION X IN COLOMBIA
PRESIDENT FUNDACION HORIZONTE 2050

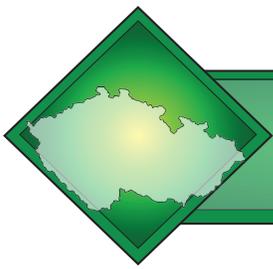
J. ABRIL CASTRO
GENERAL MANAGER FUNDACION HORIZONTE
2050



Colombia







Czech Republic

233 Children
7 Adults
12 Teams
6 Cities/Regions

Approach

The Mission-X 2015 was organized in the Czech Republic by the Czech Space Office (CSO), Center for Student Activities - Milan Halousek

Project website in Czech: <http://www.czechspace.cz/cs/mise-x-2015>

Czech Mission-X 2015 mascot was the “Kртеček” (Little Mole), which in 2011 flew into space together with an American astronaut Andrew Feustel (Endeavour STS-134) - http://www.dokosmuskrtkem.cz/word-press/?page_id=528

Participation in a closing event

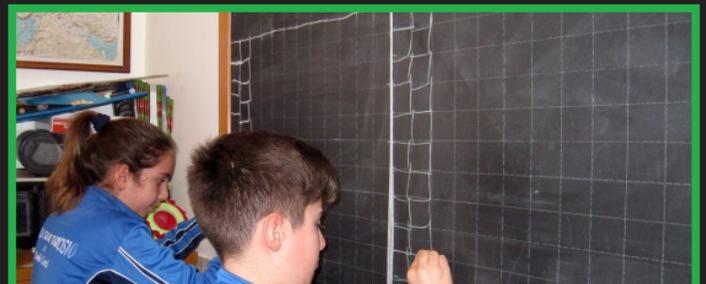
Due to time restraints the closing event was not organized this year. Rewards to all participating teams (patches, diplomas, flags) were delivered at a small resenatation by Milan Halousek, CSO, at the school.

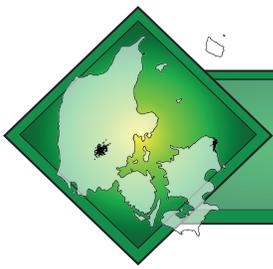
Willingness to support future Mission X events

Definitely, very happily

Internet sites/Press Releases

Project website in Czech: <http://www.czechspace.cz/cs/mise-x-2015>





Denmark

867 Children
28 Adults
31 Teams
26 Cities/Regions

Approach

The Tycho Brahe Planetarium has been coordinating Mission X 2015 in Denmark. In early autumn information about registration was sent out to all schools in Denmark and a teacher contact mentioned the Challenge on a closed teacher internet forum, and a lot of new teams found out about Mission X from this.

This year we had the teams register directly at the www.trainlikeanastronaut.org website, and got the information from the website instead of having the teams sign up with us and the adding them to the website ourselves.

We sent out a welcoming package to all schools who wished to receive one (20 teams), and sent out newsletters regularly throughout the challenge.

Major Points

When Samantha Christoforetti was launched, Tina Ibsen was on national television (TV 2 NEWS) to talk about the launch, and Mission X was one of the subjects discussed.

The Tycho Brahe Planetarium was also invited to the largest conference for science teachers in Denmark (The Big Bang conference) to give a workshop on Mission X. 20 teachers participated in this workshop. During a visit to Technopop in London Tina Ibsen made a video to "Ask the Space Experts" together with team UK. This was posted on the www.trainlikeanastronaut.org website.

Issues

We still can't get the Danish teachers to write in their points on the website, and will in the following year be focusing more on the teachers using the material, that having them collecting points.

It seems that the new reform in the Danish school system, has been a positive development for projects like Mission X, as schools now have to include 45 minutes of 'movement' for the children each day. We will be better at making this point, when promoting Mission X next year.

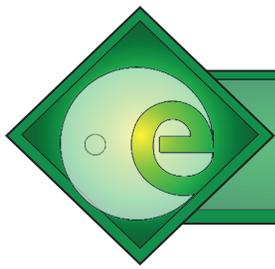
Recommendations for future Mission X events

We will not make the invites to the closing event depend on points earned in the challenge period.

Willingness to support future Mission X events

Yes, and we have a new Danish partner helping us next year.





European Space Agency

Introduction

The European Space Agency (ESA) created an opportunity to enable over 600 children and their teachers, from 3 European countries (Austria, Spain and Italy), to participate in a direct Inflight Call (IFC) with astronaut Samantha Cristoforetti on the ISS. The IFC was televised live on NASA TV for all other participants to either watch live or later.

Approach

- ESA supports the NASA team with regular discussions via telecom and participates in the WG telecons. The main support has been with organizing the astronaut messages both from the ground (preflight) and from the ISS with scripts and recordings. The astronauts are role models and the messages are designed to encourage the participating children to emulate good nutrition habits and keep physically fit.
- These messages are achieved by booking face to face time with the astronauts when they come to the European Astronaut Centre in Cologne, Germany, for part of their final training. Scripts are prepared by the ESA MX coordinator to ensure the filming and messages are appropriately defined. The use of the training facilities at the EAC are made full use of in the filming.
- The onward mailing of the MX goodies to the European participant countries.

- The liaison between European countries and NASA to ensure good coordination and communication.
- ESA has worked as an executive partner with NASA to ensure the appropriate selection of the MX F to F country and in the overall coordination of the event.

Major Points

ESA has the unique opportunity to get direct access to the European astronauts and to request their involvement with being ambassadors for the Mission X project.

Issues

- The delivery of the flags/banners needs to be made much in advance so can be actively used by countries during the MX cycle. Identified already at F to F.
- Funding for the F to F meetings is dependent on the individual countries and not with ESA or NASA. This needs to be made clear particularly to new members to avoid expectation of what it means to become a participant country.
- When new countries (or even current ones) sign up, what is the protocol to follow before starting? Responsibilities, promotion etc. To avoid disappointment to schools who wish to join but no country POC (due to lack of funding etc) it may be good practice to involve local space agency first or a science center which has good ties with space education.

Closing Events

- ESA organized 3 closing events with a dedicated IFC on 24 March.
- A call was issued on the education website to select appropriate countries who are MX participants. Details on: http://esamultimedia.esa.int/docs/edu/AO_IFC_MX2015_25Jul2014_final.pdf

Recommendations for future Mission X events

Many of the organizations involved in Mission X such as ESA, ESERO (European Space Education Resource Offices), and other science centers and space agencies all develop and produce educational resources and content. Some of this content is directly connected with the MX messages related to nutrition and exercise. It would be useful to give teachers access to this via the MX website so they can access this materials during the MX project (does not have to become part of the points system but to bring extra awareness of what is out there). The languages can be specified so that teachers can see at first glance what is relevant for them. Would involve only putting up the links (each country can contribute to this).

Willingness to support future Mission X events

ESA will continue supporting MX 2016. Currently support from astronauts Tim Peake (flight end of November – 6 month mission to ISS) and Andrea Mogensen (flight currently on September 2 (10 day mission so only post flight participation).

Internet sites/Press Releases

- 3 countries were selected for the closing event MX IFC: Austria, Spain and Italy.
http://www.esa.int/Education/Teachers_Corner/Mission_X_comes_to_a_close_with_a_call_from_space

Photos

Please extract from website :

http://www.esa.int/Education/Teachers_Corner/Mission_X_comes_to_a_close_with_a_call_from_space



Finland

328 Children
20 Adults
16 Teams
8 Cities/Regions

Approach

Mission X 2015 has been organized in Finland by “Resurscenter för matematik, naturvetenskap och teknik i skolan”, a project within the university of Åbo Akademi in Turku. The MX-organization (one person) has worked in collaboration with Nordic ESERO in Norway. The participating schools are all Swedish-speaking schools situated at the coastal line of Finland. All information during Mission X 2015 was sent out in Swedish language. The information about Mission X was sent out to the headmasters in all schools and via the project’s website and group in Facebook. Some of the participating schools participated already in Mission X 2014.

Major Points

The teachers and the classes being able to focus on different aspects of the challenge is something that the teachers find good. Some classes have focused more on the physical activities and health aspects and some focus more on different phenomena in the space. The big happening, the solar eclipse, at the end of this year Mission X was of course a highlight experience.

Issues

- Some teachers had difficulties with the registration, especially if you wanted to register more than one team
- Two teachers mention that the material is more suitable for pupils in grade 3 – 4 and would like to have more challenging material for the pupils in grade 5 – 6.
- While some of the pupils have attained the project once already they would need more material (ac-

ording to the teacher) Other teachers claim that there is too much material for the time they can use within the project.

Participation in a closing event

In Finland no big closing event is organized. (The classes would have to travel a long way and travelling is expensive for the municipalities.) Some of the teams have organized their own closing events. Teachers mention e.g. the shooting of the pupils own selfmade rockets and different kinds of parties. Nordic ESERO sent us water bottles with the MX logo for every child and then there were all the flags.

Willingness to support future Mission X events

Yes, we are willing to participate in 2016.

Internet sites/Press Releases

<http://www.skolresurs.fi/node/1818>

Testimonies from

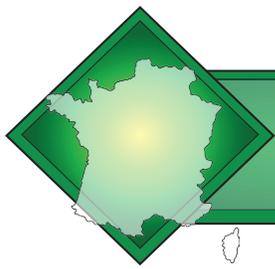
Children:

- No silly books!
- Good to have more physical activities in school!
- Inspiring to learn more about the space!

Teachers:

- Interesting!
- Inspiring!
- You can choose what you want to do with the class!





France

2,036 Children
120 Adults
82 Teams
53 Cities/Regions

Approach

The project was launched in October to 10 “French region/educational authorities” with a registration deadline scheduled in December. At the beginning (January) and all over the challenge, CNES sent to teachers organization information by mail: how to enter their points, how to write on the blog, space news, etc.

For children: the Mission journal created 2 years ago by a teacher was printed by CNES and sent to the teachers (1 journal for 2). For teachers: a Mission X notebook was printed and sent to each teacher.

It explains all the activities and makes the link with French official school education program. The flag sent by NASA was sent to each participating class.

Major Points

Mission X gave the opportunity to sport and science teachers to work with English, arts, physics and mathematics teachers, creating thus a multidisciplinary projects.

Skype attempt between French class and Canadian, Australian and English class have been made. Actually I just know that a class from French Guiana talked to an Australian class through video movie.

Issues

Points rubric are still difficult for teachers to understand and to fill in.

Challenge period is too short to end up the total numbers of activities. Most of French teachers started activities before the official start challenge.

Participation in closing events

Seven classes from Toulouse, Montpellier and Bordeaux attended the closing event (representing 170 children and 15 teachers) at la Cité de l'Espace (Toulouse) on April 9th, seven. CNES welcomed them and they visited the space park on their own.

In Paris, CNES will invite 30 children at the International Paris Air Show. They will make a presentation to Jean-Yves Le Gall, President of CNES.

Recommendations for future Mission X events

Mission Journal could be on the blog (Internet) so children could fill it in directly on line

Period of Challenge should be increased. Teachers need more time to complete the activities. During the current challenge period, there are 2 weeks holidays in France.

Willingness to support future Mission X events
Yes !

Internet sites/Press Releases

- A school blog: <http://jean-mermoz.ecollege.haute-garonne.fr/vie-du-college/mission-explore/mission-explore-bienvenue-19781.htm>
- Information regarding a college in Langon (Bordeaux): <http://www.c-yourmag.net/>

Testimonies

Children:

Alexandra G. (12 year old, 6C Collège Massillon- Clermont Ferrand-63)

« Pendant la Mission X, nous avons couru sous toutes les formes possibles, nous avons fait de très grands sauts, et des rallyes têtes et jambes, jambes et bras.

Nous avons aussi fait des activités avec un chronomètre, couru avec des poids, et sommes partis à la neige faire du ski de fond et des raquettes.

L'activité qui a le plus plu à la plupart de la classe est la mission à la neige parce que c'était une grande aventure à vivre. Presque personne n'avait fait du ski de fond ou des raquettes auparavant. Maintenant, notre prochaine mission devra être de prendre une navette et d'aller sur la lune !! C'était génial et on s'est vraiment amusé et tout ça c'est grâce à Mr. Dhumes et toutes les autres personnes qui l'ont aidé à préparer la « Mission X ».

Merci à tous pour cette belle expérience!! »

« During Mission X, we ran a lot in all manners, we jumped high, we had activities with a chronometer, we ran with weights. We went to the mountain and practice cross-country ski and snowshoes. This visit was a great adventure for the entire class because most of us practiced ski or snowshoes for the first time. Next mission, going to the moon ! It was so great and very exciting thanks to our teacher and the people who helped him. It was a great experience, thank you everybody!”

Mehdi (12 years old, 6G, Collège Guy Moquet, Gennevilliers-93)

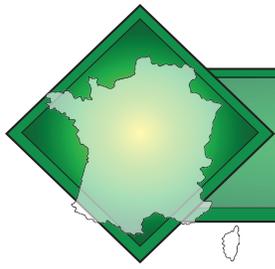
“Toutes les activités m'ont plués. Mais surtout la corde à sauter. C'était amusant avec la classe. D'ailleurs, je n'ai pas trouvé l'activité assez dure. Ce que je retiens c'est que les os rétrécissent dans l'espace car on n'utilise pas assez nos muscles. C'est à cause de la depesanteur... Heuuu l'apesanteur. On vole dans l'espace. C'est la différence de la gravité où on touche le sol sur terre. J'aurais aimé que ce soit plus long. “

“I enjoyed every activity, especially jump rope. That was fun with the class. I did not found this activity so difficult. I learnt that we have to practice lots of sports to get our muscles and bones strong to stay in reduced gravity environment like in space. We fly in Space. It is different on earth because of the gravity. I wish Mission X could be longer”

Charlène (5è5, collège Rosa Parks, Toulouse-31)

“J'ai été très contente de découvrir toutes ces informations sur mon corps et les effets du sport et de l'alimentation. Je me sens beaucoup mieux et j'ai pris de bonnes habitudes.”

« I enjoyed learning so much about my body and the way sport and eating can affect my body. I feel better now that I have changed my habits.”



France

Issa, Collège Les Maillettes (Moissy Cramayels-94)

“Ce qui m’a plu c’est quand nous avons fait du vélo avec les professeurs, ils ont fait avec nous, on s’est surpassé, c’était super”

“Ce qui m’a moins plu, c’est quand on a mixé les hamburgers et le kebab pour observer la quantité de graisse dedans car cela ne sentait pas très bon et en voyant les résultats, j’ai eu du mal à remanger des sandwiches”

“Ce que j’ai retenu de marquant c’est qu’en faisant les sessions de sport avec mes amis cela nous a beaucoup plu mais on a eu beaucoup de courbatures les jours suivants. Cela doit être très dur de devenir astronaute”

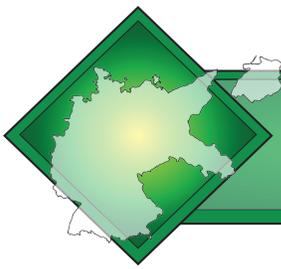
“I really enjoyed when we practiced bicycle with the teachers. I did all my best, it was so great.

I less enjoyed when we blended sandwiches (hamburger and kebab) and we saw all this fat. It was smelling awful. It took me some time to eat this king of sandwiches again. With my friends, we learnt that after practicing sport we are sore. It must be very difficult to be an astronaut.”

Teachers:

Great motivation for the project.





Germany

496 Children
15 Adults
21 Teams
14 Cities/Regions

Approach

We did promotion via

- the education ministries in our 16 federal states.
- individual E-Mails to teachers using the mailing-list or the 12 DLR_School_Labs and some more 25 associated School_labs
- on the DLR-Homepage DLR_next
- during visits to our DLR_School_Labs.

Organization was via webpage (self-organization).

We personally contacted each registered group offering help and discussions; however there was quite little response.

Major Points

Unfortunately none. Although the number of participants increased by a number of magnitude since 2014, I estimate this MUCH too low for a country like Germany. Only two groups posted pictures and points (!) The most active group is not in Germany (!) I wonder whether the registered groups did much action in context to Mission X. We will contact them for an evaluation after the Easter holidays.

Issues

The participation of German schools is not satisfying. We consider doing even more advertisement writing a letter to every German school, but we still have to check the costs.

It might be possible that there are too many competitions for pupils during the last years, including those dealing with space and Astronauts. (In conjunction with the mission of Alexander Gerst in 2014)

Participation in closing events

We did not offer a German closing event. Due to the small number of participants all over Germany and the problems of time and traveling, we do not see any possibility to organize such an event.

Willingness to support future Mission X events:
Yes

Internet sites/Press Releases

http://www.dlr.de/next/desktopdefault.aspx/tabid-8986/15521_read-38114/

<http://www.dlr.de/next/desktopdefault.aspx/tabid-7282>

http://www.dlr.de/next/desktopdefault.aspx/tabid-7283/12212_read-28974/

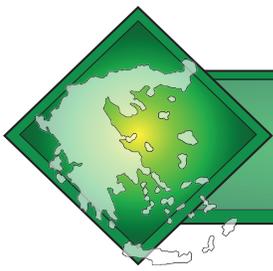
<http://www.dlr.de/next/desktopdefault.aspx/tabid-6102>

<http://www.dlr.de/next/desktopdefault.aspx/tabid-7356/>

http://www.dlr.de/next/desktopdefault.aspx/tabid-7287/12227_read-28983/

http://www.dlr.de/next/desktopdefault.aspx/tabid-7285/12224_read-28981/





Greece

417 Children
14 Adults
4 Teams
3 Cities/Regions

Introduction

The Mission X program was run in Greece for the first time in 2015. Given the opportunity of the festive events organized by the 25th Public Primary School of Acharnae for the celebration of the World Space Week on the 6th- 10th October 2014, in combination with the PanHellenic School Sports Day on the 6th October 2014, the Mission X program was presented for the first time as part of these festive events.

The program gave the opportunity to the attending teachers from a number of schools (i.e. Primary School teachers, PE teachers, Foreign Languages teachers, IT teachers, Art and Music teachers) to cooperate in order to support the Mission X program in Greece. As from the 1st November 2015 Greece has become an official member of this international educational challenge. On the 5th of November, Ms. Shamim Hartevelt (ESA Didactics expert/ Education and Knowledge Management Office/ESTEC) welcomed the participation of Greece to the MissionX.

Approach

Mission X was implemented as a school project in four (4) schools, and involved activities for each of the schools. Students were divided in groups of mixed abilities who performed a number of “stations”, described in Level 1 and Level 2 MX’s guidelines, after being given the main guiding on how to proceed to the implementation of their duties as

“trainee astronauts”.

All 14 teachers of the participating schools, were very supportive by giving instructions, motivating and encouraging the students, while explaining every step they had to take in order to reach their goals and move on to the next planned “station”. Students got involved in a number of activities related to their training as astronauts, such as physical, artistic, informative etc. The teachers responsible for their training were continually supported by information and guidelines sent to them by email, phone or even face to face contact on how to register or even how to proceed to the next steps and complete the program successfully. The information was given by Mrs. Athina Primikiri to all participants, who implemented MX program in other schools in Athens or the county of Greece. The teachers involved also took initiatives individually by using the information given in MX’s blog site.

As far as the registration in the program was concerned, there were some objective difficulties faced by a number of members who found it impossible to subscribe, although they had taken all actions required. Some never received registry confirmation and as a result they were discouraged and gave up trying. Nevertheless, with the valuable help and support of Ms

Nubia Carvajal we managed to overcome most of the difficulties.

Major Points

- As the program is supported by an international Forum, the students who participated as well as the teachers who implemented it were given the opportunity to link with schools from 28 countries around the world, watch the implementation of the program in these countries through their posts, exchange ideas and gain new experiences.
- It also gave teachers the opportunity to interlink and enrich the schools' curriculum with the inspiring philosophy of the MX program, emphasizing on the importance of physical strength and wellbeing by introducing it to students' daily routine and by giving them the motivation to make it part of their every day life. It reminded them, in a playful and amusing way, of the ancient Greek quotation " A healthy mind in a healthy body". This was also the initiative for a very important lesson learned through a number of activities based on nutrition and the benefits of a healthy diet not only for the physical endurance but also the mind's health.
- The program also gave students and teachers the opportunity to develop their teamwork skills. By working in teams, they improved their relationships and it was surprising to see how much students bonded together, through the program's activities. The feedback from all adult participants was also positive, with the excep-

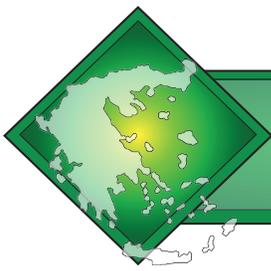
tion of one P.E teacher who seemed to be unwilling to provide feedback.

- The students of the 25th Primary School of Acharnae also took the opportunity to visit the European Space Expo in Athens on March 31, 2015 and present ESA's message. Moreover, they produced a booklet, which depicted the impression they got of the program as a whole. They are now planning to promote the program through this booklets to their friends and acquaintances, so as to motivate them to join it too by recommending it to their schools.
- Given the financial circumstances, we are glad to have gone so far! Had our financial support been greater, we would have certainly had more to report. Overall, it was a fantastic experience!

Issues

The participating students, being well trained and skillful in many ways, did not require much effort in order to complete the program successfully and meet the standards their instructor teachers set at the beginning of the program.

The teachers though, were more reluctant to join the program, probably due to the lack of motivation (i.e. a certificate of participation would be considerably helpful in motivating teachers, as this is a common practice



Greece

in the Greek Educational System).

The promotion of the program and its implementation also needs to be strengthened, in order to attract more participants. Action has been taken as far as this is concerned by an approach made to the Greek Ministry of Education. As a liaison, I have highlighted the advantages of the program and the benefits to the educational system as a whole, and I am now in attendance of their response. Moreover the “Eugenides Foundation Planetarium” donated to MX2015 students books from its publications titled “An endless journey”.

Hopefully, the program will gain all the support needed.

Participation in a closing event

- The 25th and 22nd Public Primary Schools of Acharnae are planning a festive celebration on June 10, 2015 as a closing event, which, among others, will include an overall briefing of the program through video projections of MX activities through the year and an interactive speech conducted by a nutrition specialist supported by the Municipality

of Acharnae. All students will receive rewards for their participation in the program, such as MX certificates and flags. Additionally, the students of the 25th Primary School of Acharnae will take the opportunity to promote the program through the leaflets they have produced and even sell it as fundraisers, in order to support next year’s MX program.

- Rewards (i.e. MX certificates and flags) have also been sent to all participants in Greece as, due to distance restrictions and limited funds, each school will organize their own closing event, with the exception of two adjacent schools organizing a common closing event.

Recommendations for future Mission X events

As mentioned above it is very important for the MX contributing teachers to have a certificate (like a letter head) as an evidence of their participation for their CV.

Willingness to support future Mission X events

We are willing to participate in MX16

Internet sites/Press Releases: No





Italy

1,520 Children
151 Adults
72 Teams
21 Cities/Regions

Approach

The 2015 edition of the International educational project Mission X – Train like an Astronaut was coordinated in Italy by the Italian Space Agency (ASI) in collaboration with the Agricultural Research Council (CRA), a National Research Organization which operates under the supervision of the Ministry of Agriculture, with general scientific competence within the fields of agriculture, agroindustry, food, fishery and forestry.

In September 2014 we published the call on the ASI web site, giving the possibility to all interested schools in the country to participate in the project. In order to facilitate the school participation, in the call we published a calendar with the most important dates of the project: registration deadline, teachers training days, website opening, beginning of the challenge, Italian final event and International final event.

Unfortunately we did not reach the goal we set: to increase by 50% the number of students enrolled compared to the previous edition (in 2014 participating students were 1313). The participation in Italy during the MX 2015 edition rose by 11,42% or 207 students. But an important achievement for the Italian Mission X team was that we involved for the first time new school teams from new Italian regions: Sicily, Puglia and Veneto.

To better prepare the students, we organized two training days for teachers, which took place in January 2015. The two training sessions were held for the first time at ASI in Rome. Training sessions mainly consisted in explaining the project and the use of the dedicated web site (www.trainlikeanastronaut.org).

Moreover, experts in the fields of nutrition and health participated in order to provide teachers with the necessary background to be transmitted to students. The two training sessions were broadcast live, thanks to an online platform which allowed to all teachers located all over Italy to participate in the training, and have been recorded and distributed as an extra support tool.

In January 2015, ASI sent to all the schools registered to the project space educational material: ESA educational books and DVD about ISS and Life in space; an educational kit on DVD about Earth Observation Satellites. ASI also sent extra material to use in classrooms during the project, such as exercise books with the MX logo on the cover. All of those products were produced and financed by ASI and ESA.

ASI set up a reference contact point for MX teachers, available via e-mail and telephone, for questions and clarifications.

The final Italian MX event took place on April 27th

2015 in the ASI Headquarter in Rome. The final event involved more than 260 Italian students from primary to lower secondary schools, with more than 40 coordinating teachers. ASI gave to all students and teachers the opportunity to spend a day with ASI highly qualified staff and to take part in a 20 minute Inflight call with the Italian astronaut Samantha Cristoforetti on ISS.

Major Points

All project activities have been developed in line with the philosophy that guides Mission X, namely the importance of a healthy lifestyle, based on physical activity and proper nutrition. Based on these guidelines, it was decided to organize the training of teachers' coordinators, inviting two nutrition experts of the CRA to attend the training sessions for teachers and the Italian final event at ASI.

The first highlight of the 2015 edition was the national final event, held in Rome on April 27th, 2015, which has stressed the great success of the current edition. (For more details related to the event, see point E). Considering the subjectivity of the evaluation and scoring system for the activities, during the 2015 edition, ASI decided to highlight once more the spirit of fair play that is leading the project, emphasizing the importance of participation and not victory. This is why it was not awarded the winning team but the

participation and commitment of all.

The real prize, offered to all participating teams was the richness of the project, the opportunity to learn more about the fascinating world of life in space, the possibility and the unique opportunity to pose questions to an Italian astronaut (Samantha Cristoforetti) during the national event. The event has been designed and organized to be an important opportunity to attract and motivate participants, students and teachers, not only within the MX program, but in the broader context of space activities.

Issues

Calendar of events: the preparation of a detailed calendar of annual events related to the project (training days and events) allowed schools and teachers to harmonize and better organize their annual teaching program (visits and educational trips) with these initiatives. It also provided from the outset a clearer idea of the commitment that the project would require.

ICE: The ICE of in the current edition will be held for the first time in the ASI Headquarter in Rome and will involve the MX Working Group Members in face-to-face meetings. Furthermore there will be a special educational event in a Roman school, the Public school "Elsa Morante - Middle school Carlo Cattaneo". This event will involve more than 250 Italian students from



Italy

primary to lower secondary schools, with more than 40 coordinating teachers. ASI will give to all students and teachers the opportunity to spend a day with ASI/NASA/ESA and the other Space Agency highly qualified staff and to take part in funny educational space activities.

Login credentials to blog: during the 2015 edition we have not reported important problems with the management of credentials for blog access. By the way, the MX15 Registration has been extended till 31 December 2015 and this was a really good solution because the former deadline was too short due to the Christmas holidays.

Participation in a closing event

The 2015 edition was completed in Italy with a big final event, held in Rome at ASI, on April 27th, 2015. The closing event involved more than 260 Italian students from primary to lower secondary schools, with more than 40 coordinating teachers.

In the spirit of fair play that drives Mission X, ASI has chosen to reward participation in the project and not the victory, giving to all students and teachers the opportunity to spend a day with ASI and CRA highly qualified staff and to familiarize with the space environment. Students also watched a video about life in space and space missions and were introduced to the implication of microgravity on astronauts' health and related fitness counter-measures.

Kids took part to fun games on space and laboratories on nutrition. The highlight of the event was the Inflight call with the special guest of the ceremony: the Italian astronaut Samantha Cristoforetti on ISS. She spoke about her training experience as an astronaut, her Mission aboard the ISS, and answered numerous questions from children. The event has been concluded with a Space Quiz where the little participant could win a lot of gadgets and accessories related to Mission X and the Italian space sector. We received many positive feedbacks from teachers about the event organization and contents.

Recommendation for future Mission X events

See point D

Willingness to support future Mission X events
Yes.

Internet sites/Press Releases:

<http://asitv.it/media/vod/v/1864>

<http://asitv.it/media/webtv/c/2/sc/10/v/1868>

<http://video.ilsole24ore.com/>

TMNews/2015/20150427_vid-eo_17442924/00031174-spazio-astrosamantha-parla-dalliss-con-260-studenti-italiani.php

<http://bisceglie24.it/evento-conclusivo-mission-racconto-dellincontro-ragazzi-della-monterisi-e-astronauta-cristoforetti-foto-e-video/>

<http://www.bisceglieviva.it/notizie/gli-alunni-della-monterisi-in-collegamento-con-l-astro-nauta-cristoforetti/>

<http://www.bisceglieviva.it/notizie/scuola-monterisi-a-roma-per-mission-x/>

<http://bisceglie24.it/la-monterisi-di-bisceglie-pronta-a-intervistare-samantha-cristoforetti-nellambito-del-progetto-mission-x/>

<http://www.bisceglieindiretta.it/mis-sion-x-gli-studenti-della-monterisi-si-allena-no-come-gli-astronauti/>

<http://www.bisceglieilive.it/news/Cronaca/364951/news.aspx>

<https://it.notizie.yahoo.com/verso-la-conclu-sione-la-mission-x-allenati-come-094135699.html>

http://www.askanews.it/altre-sezioni/sci-enza-e-innovazione/verso-la-conclusione-la-mission-x---allenati-come-un-astronau-ta_711488132.htm

<http://www.bisceglieindiretta.it/tag/mis-sion-x-allenati-come-un-astronauta/>

<http://www.familyintrentino.it/it-news.htm-l&bsread=yes&idline=2622>

http://notizie.virgilio.it/notizie/scien-ze_e_tecnologie/2014/10_ottobre/29/mis-sion_x_-_x2013_allenati_come_un_astronau-ta_edizione_2015,43800079.html

http://www.bene-stare.it/index.php?option=com_content&view=arti-cle&id=1403:mission-x-allenati-come-un-as-tronauta-la-v-edizione-e-pronta&catid=34:e-ta-evolutiva&Itemid=115





Japan

1,432 Children
70 Adults
11 Teams
7 Cities/Regions

Approach

JAXA has given some lectures for the participating schools prior to the 2015 challenge in order to support teachers and motivate children. A total of 11 teams—representing nine schools, one after school class, and a sports club—expressed interest in joining the Mission X 2015 challenge. The JAXA Space Biomedical Research Office along with the Space Education Center gave lectures to the educators. Five new teams are participating this year, with six teams continuing from last year.

We received great support for implementing this project from the boards of education in Tsukuba, Itabashi, and Kawagoe city, as well as from the medical society of Itabashi city and Togo town in Aichi prefecture. Togo town operates its own health and fitness division in the town's administration and the entire town is interested in the activity for well-being. Mission X played a very significant role in this activity.

Major Points

- 1) JAXA gave lectures to students this year via videoconferencing. This enabled teams located far away from the JAXA office to participate in Mission X.
- 2) Six teams were continuing their participation in Mission X, including three teams (representing Nagaya elementary school from Yokohama city, Tokorozawa elementary school from Tokorozawa city and Uwado elementary school from Kawagoe city, respectively) that have participated for more than three years and supported us with great cooperation. They are now not only using the Mission X materials but also beginning to find effective applications. In particular, one teacher from Nagaya elementary school informed us about the effective usage of Mission X materials in the school's curriculum covering P.E., health education, science, English, and home economics, as well as in extracurricular activities. We plan to share this information with other teachers in Japan, as a good example of Mission X application in their schools.
- 3) We have thus far convened a workshop on the achievements of Mission X in Japan. One of JAXA's goals is the widespread dissemination of Mission X in the Asia-Pacific region. Therefore, we made a presentation introducing the achievements of the Mission X program in Japan at this year's Asia-Pacific Regional Space Agency Forum (APRSAF) conference in Tokyo, and also conducted a workshop on this matter.
- 4) We also provided a video this year entitled "Ask the space expert," with great support from Tachikawa elementary school.

Issues

1) We would like to propose the sharing of a list of participating countries and point of contact (POC) information, in order to encourage international collaboration more efficiently. We had planned an event to promote collaboration with other countries from the Asia-Pacific region at our own Mission X 2015 Closing Event held in March. Although we could not realize such an event this year, we will try again next year. Of course, it would be much easier for us to find collaborators when provided with a list of POC information regarding all participating countries.

2) For the next challenge, we would greatly appreciate that detailed information about the Early Challenge be provided much earlier. (We have already noticed some improvement in this regard, as evidenced by our receiving information at the MXWG teleconference in April!)

Participation in a closing event

We held the Mission X 2015 Closing Event at the JAXA Tsukuba Space Center on March 21, 2015. We used the materials entitled “Energy of an Astronaut” and “Taste in Space” obtained from the mission data of Mission X, in order to learn about the importance of food and exercise in maintaining good health in space.

All participants enjoyed discussing how to obtain balanced nutrition from limited amounts and kinds of foods, so as to maintain good health during long duration space flights such as those for Mars exploration. Participants also enjoyed tasting the Japanese Space Food.

Willingness to support future Mission X events
JAXA will continue to participate in the Mission X project. The JAXA Mission X team is willing to introduce this challenge to other space agencies in the Asia-Pacific region.

Internet sites/Press Releases:

<http://www5.city.yokkaichi.mie.jp/menu86976.html>

http://www.smartlife.go.jp/activity/2015/02/23_04

The Chunichi Shimbun (daily newspaper in Japan), 12 December 2014 edition (see attached)

Children Testimonials

1) It is fun to do the exercise and learn about space. We are trying to make it more fun by arranging the programs, such as doing the exercise in groups and cooperating with each other.

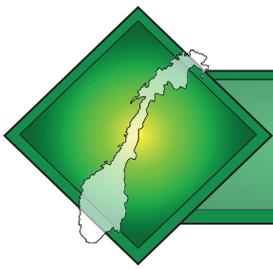
2) Use of this program may better motivate children in enjoying the exercise. Children are now more interested in space-related matters.



Japan







Norway

142 Children
3 Adults
3 Teams
2 Cities/Regions

Approach

Mission X was led by Nordic ESERO (European Space Education Resource Office) at NAROM (the Norwegian Centre for Space-related Education) and managed by Educational Consultant Hege-Merethe Strømndal

Schools were invited to take part via newsletter, Nordic ESERO and news published at our websites www.sarepta.org and www.narom.no

The schools/ teams were provided with Mission X news/different information through the project period and with relevant ESA ISS materials, on-line resources, booklets. In addition they were supported in different ways when needed. Although we continuously encouraged the teams to register points and post information at the blog the results shows us that only 3 teams registered points and no one used the blog.

The schools in Norway run the Mission X in a way that suited the students, teaching plans and curriculum.

Major Points

The young students – and the teachers in Norway, have had an educational and fun “expedition”, and look forward to participate next year too

Issues

We changed from t-shirts to water-bottles and reflex bracelet with Mission-X logo. As a Norwegian administrator I have a Login to the Norwegian site and can follow the national teams. I need to increase my effort in advertising for Mission-X 2016, and hopefully we will get a huge number of teams next year.

Participation in a closing event

In Norway the participating schools are all far away from each other and spread all over the country. Because of that we have decided that each team secured their local closing event. None of the schools have presented their closing event in the blog.

Recommendation for future Mission X events

It is very important to come up very early with all the dates related to the different details of the participation.

Willingness to support future Mission X events

We experience that Mission X is an educational, inspiring and motivating activity for the classroom, and we are looking forward to take part and organize Mission X in 2016.





Portugal

749 Children
38 Adults
9 Teams
X Cities/Regions

Introduction

In Portugal, we had an initial registration of 20 schools in a total of 749 students. From these, 9 schools completed the full mission (a total of 419 students and 18 teachers). The teams are both from public and private schools and are from all over the country, including islands (Azores).

Approach

In Portugal, Mission X is coordinated and supported by Ciência Viva / ESERO Portugal. The Ciência Viva team provides help and support to all interested and participating schools.

The promotion of Mission X 2015 was mostly via the institutional websites and social media channels and at specific events held at the Pavilion of Knowledge for teachers like the Teacher's Night 2015, the Space Teacher's Conference 2015, Science Week, teacher's workshops and also through the ESERO's Portugal mailing lists. Mission X has dedicated entries at Ciência Viva and ESERO Portugal webpages.

Since the beginning of MX 2015 activities we have been supporting the schools, through helpdesk, providing information and answering to questions, related with registrations, deadlines, main tasks, point system, blogging, supporting materials, etc.

We have also distributed the flags and banners sent by ESA and NASA and organized the closing event. The closing event was our major happening, considering time and resources invested in the organization and the feedbacks from teachers and students.

Highlights

This year, once again the project involved a high number of participants who showed a remarkable dedication throughout the activities. It's also interesting to see that some schools keep participating in this project since its beginning in Portugal. Many of the teachers are also participating in other activities promoted by ESERO Portugal, namely CanSat and Food from Spirulina.

It's also worth highlighting that we preserved our partnership with the Faculty of Human Kinetics of the University of Lisbon and counted this year with the cooperation of Faculty of Sciences of the University of Lisbon. This stable partnership between Ciência Viva and the Portuguese scientific community is still being an added value to educational projects like Mission X.

Issues

It is important to create new activities with a stronger scientific base and find new ways to motivate and reward the best teams, once Mission X is an international project and generate high expectations among students.

A closing or opening event contributes to strength the spirit of Mission X and works as a reward for the effort students and teachers make at their schools to fulfil the missions.

We need more attention to the considerable difference between the number of schools registered and the ones that actually complete the six week of Mission X activities.

Another item that needs attention is the distribution of the promotional materials. It's visible that they motivate students and strengthen the dissemination of Mission X in schools. Thus, they would be more useful if received at the beginning of the project.

Closing event

Over 200 children and 20 teachers participated in the closing event that took place on the 14th of May, at the Pavilion of Knowledge, in Lisbon. This year, for the first time, we were able to bring students from Azores to final event.

The students carried out physical activities that simulated specific situations that the astronauts experience at the International Space Station, once again with the collaboration of the Faculty of Human Kinetics of the University of Lisbon.

With the collaboration of Professor Manuel Matos Lopes, from the Faculty of Sciences of the University of Lisbon, children were introduced to the history of the International Space Station and the importance of space research. There was also a session about Space Food prepared by our own team. We had the special participation of ESA's Education mascot, Paxi, which was also present at the event.

The feedback from all participants was very positive, some teachers described it "as a unique opportunity to the children" and a "once in a lifetime experience". One of the students asked if he could come every Thursday to do the activities.

Will your country participate and support Mission X 2016?

Yes.

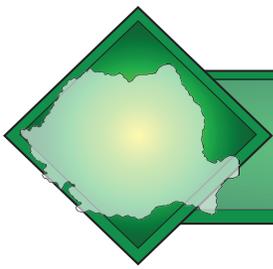
Internet sites

Ciência Viva Website: <http://www.cienciaviva.pt/projetos/missaox/>

ESERO PT Website: http://www.cienciaviva.pt/esero/iniciativas/?acao=showini&id_i=116

ESA Education Paxi's Facebook page: <http://tinyurl.com/paxi-missionx2015>

Pavilhão do Conhecimento – Ciência Viva Facebook page: <http://tinyurl.com/CV-missionx2015>



Romania

480 Children
49 Adults
X Teams
X Cities/Regions

The name of the school has been inspired by the great personality and work of CONSTANTIN BRANCUSI –the world famous sculptor

Cluj-Napoca is the second biggest town in Romania, after Bucharest. It is situated in the heart of Transylvania and it is an important historical, economical, cultural, as well as an artistic centre, offering an adequate framework for the intellectual and physical development of the young people in their training process as well prepared citizens of the 21st century society.

Number of students:480

-Number of forms: 21

-primary level:11 forms, 254 students

-secondary level:10forms, 226 students

-Teaching staffs:-11 primary school teachers

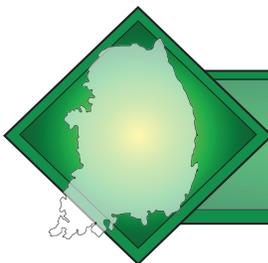
-38 secondary school teachers

The project team consisted of 20 students (10-11 years old) coordinated by

Eugenia MARCU physics professor and

Florina FILIP ,Paul OLTEAN sports teachers





South Korea

212 Children
11 Adults
8 Teams
3 Cities/Regions

Introduction

This is the first year that the project Mission X was conducted in Republic of Korea. Korea Institute of Child Care and Education (KICCE, a research institute under the prime minister of Korea) organized, implemented and managed the Mission 2015 project.

Above 80% of Korean preschool children go to early childhood education and child care institutions, KICCE recruited the children through kindergartens and daycare centers and developed the weekly based teacher's manuals by interviews of parents, teachers and advisory groups.

Three kindergartens (total 8 teams) in 3 different regions were selected. The directors and teachers of these kindergartens were trained for performing the Mission X from the first week to the third week of October.

Under the supervision of KICCE, this project started in the last week of October and ended in the first week of December. Six missions were completed as a regular class activity in 3 kindergartens. Parents helped their children do these activities at home with guideline provided by KICCE.

Participants

- Osan college kindergarten
- Hanyoung kindergarten
- Cheriya kindergarten

Cities

- Osan
- Seoul
- Yongin

Approach

KICCE organized and implemented Mission X 2015 as special activities in regular class of three kindergartens. KICCE provided standardized teacher's manuals and Jungwon Min was in charge of this project.

Major Points

- Setting up the project in Sep. 2014
- Developing standardized Korean manuals for teachers in Sep. 2014
- Recruiting the participating child education institutions in Sep. 2014
- Kick off meeting with teachers in Oct. 2014

Issues

- The point collection system helped to raise children's team work. Children cheered up their team members and didn't give up during the activities since the levels of fun as well as effort were counted in.
- Children were enthusiastic for the 'Walk to the moon'. Because the pictures of land marks and foods were passing fast without transcriptions, children needed more information.
- Children suggested a day of union and some networks with international participants to meet their increased interests in other countries.

Closing Event Participation

Republic of Korea didn't have a closing event due to the winter break season in Kindergarten. But we expect a closing event for participants of Mission X 2016.

Recommendations

- The video clips were helpful to make children understand how to complete the mission. For better understanding, children and teachers wanted to hear or see the video clips in their native language.
- The materials for parents can help young children do regular exercise at home.
- In addition the Mission X program can be extended as an integrated program for physical health and globalization by presenting specific healthy diets and exercises in each country.

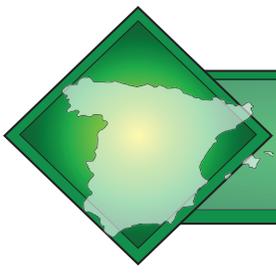
Support for Future MX Events

Yes, KICCE is planning for participating MX 2016.

Press Releases/ Internet sites

Final report (written in Korean) was uploaded in the KICCE web site(www.kicce.re.kr).





Spain

1,034 Children
62 Adults
46 Teams
12/19 Cities/Regions

Approach

The research group ImFINE from the Universidad Politécnica de Madrid has been the coordinator for all the Spanish Schools involved in MX 2015. We established a first contact with all the schools at the beginning of September and we invited them to participate. A remarkable issue this year has been the support of the Madrid Council (one district), which indeed allowed to bring new schools from Madrid into the program and the financial support to afford the IFC. As previous year we have had the collaboration of the Astronomy Center from Huesca (ESPACIO 0.42), it worked as coordinator for the schools in Huesca (a region at North of Spain), and we have had the priceless support from ESAC (European Space Astronomy Center) and ESA to organize the IFC with Samantha.

As a new action for this year we created new tutorials in youtube for our teachers (in Spanish) in order to support them to understand the whole project, lessons, materials, webpage, blog updates, etc. All of them are available online in: https://www.youtube.com/playlist?list=PLtzA_Ucra2Fy-buI-DARznEAVPIKyaDYQo

Major Points

The remarkable support of all the teachers involved in MX to the project year by year.

We are really happy we continue with the support of ESAC, the Astronomy Center from Huesca and Madrid Council during this current year

Issues

It has been really difficult to run the project without financial support. This year and after hard negotiation finally we got the support of Madrid Council but, due to political decisions we received contradictory answers during the year. I meant a big problem for us to manage. For next years we would sign an agreement with any supporter before any actions.

Participation in a closing event:

We were really lucky to have the opportunity to participate in the IFC with Samantha as a final event for MX 2015 in Spain. The event took place in ESAC for 200 students from Madrid and surroundings. Our schools in Huesca had the opportunity to go to the Astronomy Center from Huesca to see in streaming the connection and to visit their facilities

Did your students participate in the pre-surveys?

Yes

Did your students participate in the post-surveys?



Yes

Recommendations for future Mission X events

The experience to participate in the IFC was just amazing for all teachers and student. Even when it means to organize a big event it is worth. The use of tutorials was quite useful to save time between teachers and coordinator

Willingness to support future Mission X events:

Nowadays it is impossible for us to support an International event without financial support. Anyway we are willing to support MX 2016 if we can get financial support





Sweden

549 Children
36 Adults
18 Teams
12 Cities/Regions

Approach

Mission X was led by Teknikens Hus in Luleå, Sweden and managed by David Broström, Director of education. Nordic ESERO has been our contact point and provided us with support, information and materials.

Schools were invited to take part via newsletter (e-mail and paper newsletters) and information that was spread through our networks between all the Swedish Science Centers and teacher networks that we run. The Swedish National Space Board has also spread Mission X via lectures given by in several cities all over the country. We also posted information at our website <http://www.teknikenshus.se/skola/mission-x-2015/> and Nordic ESERO announced at www.esero.no/index.php?fid=402&oid=2332

Teams and schools that participated 2014 got a personal invitation to take part in Mission X 2015.

The information was also published several times at Teknikens Hus Facebook page and also at the SCC (Swedish Science Centers) Facebook group.

Flyers with information about Mission X has been displayed at the Science center during the whole period.

The schools/teams were provided with Mission X news/different information through the project period and with relevant ESA ISS materials and on-line

resources. In addition they were supported in different ways when needed. Although we continuously encouraged the teams to register points and post information at the blog the results shows us that all of them didn't. The schools in Sweden run the Mission X in way that suited the students, teaching plans and curriculum.

Major Points

The students and the teachers in Sweden have had an educational and fun "journey", and look forward to participate next year too.

Issues

It is important for teachers to receive educational materials at least two weeks before Mission X starts as they need time to plan and prepare lessons. There were difficulties for ESA to find the binders with the ISS Education Kit for Primary in the Swedish language and as a result we weren't able to send those to schools before the end of February. The binders were necessary for teachers who are not used to use Internet.

On the online registration some of the teachers registered very large teams. In their actual work in the classroom they divided into smaller groups. To late I realized that in the information for the online registration I should have pointed out that we wanted them to register more teams and smaller.

In the feedback some of the new schools/teachers wrote that they did not understand the amount of work. We have carefully looked at our information before Mission X started and can not see that we somehow have a lack of information. But good to keep in mind to next year.

Participation in a closing event

No

Recommendations for future Mission X events

It is very important to come up very early with all the dates. Maybe the on-line registration should close a little bit earlier to make time to prepare teachers before the Mission starts.

Willingness to support future Mission X events: Will your country participate and support

We experience that Mission X is an educational, inspiring and motivation activity for the classroom, and we are looking forward to take part and organize Mission X 2016. Nordic ESERO has supported us with materials and has been our contact point during the project and we hope it will be possible in the future.

The costs for sending materials to schools during Mission X 15 haven't been covered yet, but we have been promised economical support from the Swedish National Space Board. It is very important to us that even during Mission X 2016, to regain the cost for deliveries.

Internet sites/Press Releases

The Dalarö school had a visit from the local press reporting from their work

<http://www.mitti.se/har-tranar-eleverna-for-manfard/>

Some of the schools wrote on their own Blogs

http://billingskolans02or.se/?page_id=223

<http://vonbahrsskola.se/blog/2014/04/mission-x-2/>

Swedish National Space Board published it on their Facebook group

[https://www.facebook.com/Rymdkanalen/](https://www.facebook.com/Rymdkanalen/posts/740076482686923?stream_ref=10)

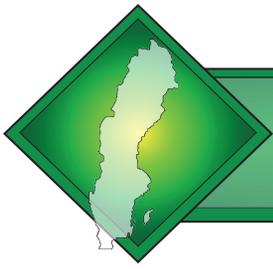
[posts/740076482686923?stream_ref=10](https://www.facebook.com/Rymdkanalen/posts/740076482686923?stream_ref=10)

Teknikens Hus has continuously updated the information about Mission X <http://www.teknikenshus.se/skola/mission-x/>

Testimonials.

Hey ! We are so pleased to have been selected for the Mission X 2015. We are in year 5 of Dalarö school, south of Stockholm.

We have now stayed on for two weeks. It's a fun project we brought in. We have among other things, tried to implement jump training , endurance training and coordinated styrketräning. Our goal is to improve our performance in the various assignments. We have also begun to learn about the ISS and looked at the film about how they have it up there.



Sweden

What fun it is , the kids are so engaged ! We did the speed of light and they worked out their averages and looked at how clever they were to catch the ruler. They had to squeeze the stress balls and they jumped and got high pulse and tried to catch the ruler ! A lot of laughter in the classroom when they missed completely and cheers when they caught it faster and faster.
Östermalm School , Stockholm

We experience that Mission X is an educational, inspiring and motivation activity for the classroom, and we are looking forward to take part and organize Mission X 2016.

Include up to 6 High Resolution Images:

SORRY, could not manage to contact the schools to send some because short of time before I am off from work.







The Netherlands

375 Children
20 Adults
15 Teams
10 Cities/Regions

Approach

- Pre challenge phase: 1 September 2014 – 5 February 2015
- Early September – December: Promotion and registrations.
- 28 January – 5 February 2015: Netherlands Space Office training sessions for Dutch Mission X teachers at their school. 10 teachers attended and followed presentations about NSO, space and human spaceflight, Mission X activities and website.
- Distribution of training material to teachers who could not attend the training.
- Newsletter to all participating teachers.
- Challenge phase: 6 February - 20 March 2015
- 6 February 2015: NSO opening event of Mission X 2015 in cooperation with Techniekpact and NEMO Science Center. 100 children from 3 schools participated to the opening event hosted at NEMO Science Center in Amsterdam and organized by NSO in collaboration with the Techniekpact Colleegetour presented by journalist Sander Koenen and ESA astronaut of Dutch nationality André Kuipers. Mission X t-shirts by NSO were distributed to the children.
- Support to teachers via weekly newsletters, emailing, phone conversations, Mission X Nederland Facebook page.
- Post challenge phase: 23 March - June 2015
- 24 March 2015: Prize winners announced. First

prize: de Koffianen II (Leiden), second prize: KMS Bussum, third prize: Kayak (Leiden).

- Gym and/or science awards (gym material and scientific classroom books, tools, games) were delivered to the winners at school.
- Letter from NSO, Mission X flags and stickers were sent to all participating teams.
- Spaceship Earth book for children about André Kuipers' PromISSe mission by Sander Koenen was sent to the 5 schools that blogged most during the challenge.
- Questionnaire was sent to participating teachers.
- Final newsletters
- Working Group Annual Meeting at the International Closing Event in Rome (27-29 May 2015)

Major Points

- As in previous years 2 teams from a school with children with special needs participated to the challenge with success. This participation proves the flexibility and appeal of the Mission X programme for all kind of schools and children, including gifted (participants in previous challenges) and autistic children.
- Newsletter: 11 newsletters were sent to the teachers before, during and after the challenge phase to support them performing the activities and the upload of points and blogs on the website, facilitate and motivate their participation.

- The Mission X Nederland Facebook page regularly posted information for teachers about the challenge and extra information about spaceflight as also regular news updates about the Dutch participation in Mission X.
 - After the development of a questionnaire for teachers last year, an improved version was sent to teachers to evaluate the challenge based on established evaluation methodologies for educational projects.
 - The opening event in NEMO Science Center in Amsterdam in collaboration with the Techniekpact Collegetour was perceived as best Mission X Opening event ever by teachers and organization. In light of NEMO's philosophy, discover the world of science and technology yourself, awaken your curiosity developing your own ideas about how the world works, the science center has proven a fantastic venue for the Mission X opening event. The Techniekpact Collegetour with Sander Koenen and André Kuipers has proven the ideal tool to teach children about spaceflight, science and technology and Mission X subjects. Techniekpact is a programme, supported by the Ministries of Education, Culture and Science, Social Affairs and Employment and Economic Affairs, promoting science and technology to young people to help increasing the number of employees in the Netherlands working in science and technology in the future.
 - Support to new NSO Mission X activity Robotarm.
- Issues.**
- Increasing the number of participants is a returning issue each year: Dutch schools are offered many interesting projects throughout the year making it a challenge to have schools participate to Mission X which requires a very enthusiastic (gym) teacher (besides other interesting projects schools can participate to several healthy nutrition and exercise projects in NL, as well as PE classes are often outsourced to a teacher not further affiliated to the school).
 - Participation of teachers to training day remains an issue as well; some teachers prefer training on a weekend day, others on weekday, travel distances are an issue for some teachers (travel costs are reimbursed though). Even the offer of personalized training at their school did not increase the number of teachers interested in receiving the training. Teachers who do participate to training day profit enormously compared to teachers who did not receive training.
 - Dutch Mission X teachers would prefer more space related activities and not only exercise and nutrition; awaiting new NSO MX activity.



The Netherlands

Participation in a closing event

NSO did not organise a national closing event.

Two delegates will participate to the MX working group annual meeting in Rome.

Did your students participate in the post-surveys?

No, however we developed and distributed an evaluation questionnaire for teachers based on established evaluation methodologies for educational projects.

Recommendations for future Mission X events:

- The following link is great but how do you get to this page from MX homepage, not knowing the link? <http://trainlikeanastronaut.org/media>
- Space Expert videos: continuing with other countries for 2016?
- Would it be an idea to tag the different satellites that Charlie passes on the way to the moon, making sure we show international satellites, all countries can help giving input, extra educational input?
- Can we discuss the option of having working groups for those who want to participate (f ex. on evaluation, material, videos...), to decrease the workload on NASA and to get more countries part of another level of MX organisation?
- Can we discuss the attendance to the monthly telecoms; talking to each other on a monthly basis is an important contact tool but the majority of countries does not participate. As NASA

is already using the management tool Basecamp,

could we at least investigate the use of Basecamp in addition to telecoms and emails?

- Mission X Facebook: can other countries post? Idea to follow all national MX FB pages?
- Maybe we can create an overview of the MXWG members on social media so we can all follow along and promote each others challenge, agreeing on use of hashtags etc.

Willingness to support future Mission X events

TBD

Internet sites/Press Releases:

Mission X 2015 announcements:

<http://www.ruimtevaartindeklas.nl/nieuws/121>

<http://www.spaceoffice.nl/nl/Nieuws/1702/Mission-X-van-start.html>

http://www.esa.int/dut/ESA_in_your_country/The_Netherlands/Doe_mee_aan_Mission_X_Train_als_een_astronaut_2015

Mission X Opening event:

http://www.noordhollandsdagblad.nl/stadstreek/metropool/article27305888.ece/Mission-X_?lref=r_regionaal

<http://www.bnr.nl/?player=archief&fragment=20150206131005240>

<http://www.radio1.nl/item/264190-De%20Ochtend%20van%20astronaut%20Andr%C3%A9%20Kuijpers.html>

<http://www.demeiboom.nu/nieuws/klas-3-tot-en-met-6-op-mission-x---door-max-bouwmeester/>

Social Media:

https://twitter.com/ESA_nl/status/563699644375773186

<https://twitter.com/NEMOamsterdam/status/563628212715274240>

<https://twitter.com/NLSpaceOffice/status/563622027849105408>

https://twitter.com/astro_andre/status/563620034665517056

<https://twitter.com/sanderkoenen/status/563652523270348801>

<https://twitter.com/eseroNL/status/563614594103803904>

<https://twitter.com/Sterrenlab/status/563623388212891649>

<https://twitter.com/nsentse/status/576318206400454656>

Mission X announcement prize winners:

<http://www.spaceoffice.nl/nl/Nieuws/1704/Koffianen-winnen-Mission-X-2015.html>

http://www.esa.int/dut/ESA_in_your_country/The_Netherlands/Team_Koffianen_II_uit_Leiden_winnaar_Mission-X_2015

<http://www.sterrenlab.com/>

Mission X NL Facebook page:

<https://www.facebook.com/groups/796727233710293/>

Testimonials

Children:

Ik vond Mission X erg leuk, vooral om ermee bezig te zijn en te beseffen wat de ruimte en eromheen allemaal inhoud. De opdrachten waren leuk en ik heb er veel plezier van gehad om te weten hoe het leven in de ruimte eruit ziet. ~Rubén

Ik vond MissieX leuk. Het circuit waarin we missies combineerden was het leukste.- Armijn

Missie X was geweldig! De fysieke opdrachten vond ik wel leuk maar het allerleukste was wel het circuit.
-Mike

Ik vond het hartstikke vet, het waren gave missies maar sommige waren ook een beetje moeilijk. - Reinier
Het was erg leuk. Alles top. Soms was het ook zwaar en soms makkelijk. - Sjoerd.

Het was leuk. - Ewan

Ik vond het wel leuk, omdat de fysieke opdrachten soms zwaar waren. De proeven waren interessant om te weten. Het proeven was best wel vies, behalve de chocolademelk. - Jack



The Netherlands

Teachers:

“Dag Nicole (en de rest),

Ik kom net thuis van een geweldig leuke dag! De kinderen uit mijn klas waren helemaal uitgelaten toen we NEMO verlieten, vol van ideeën en energie! De ontmoeting met Andre Kuipers was toch wel het hoogtepunt, wat een enthousiasme en inspiratie brengt hij over.

Heel erg bedankt dat we vandaag aanwezig mochten zijn”

“Hallo Nicole, wat was het een superdag vrijdag!! Ontzettend goed zoals de ochtend in elkaar zait!! Strakke planning en zeer goede presentator! Heel goed op niveau van de kinderen. Geweldig gedaan!”

“Dank voor de toporganisatie en knap hoe jullie het geregeld hebben.”

Mission X 2015 has been a very successful challenge thanks to very enthusiastic teachers, parents and children. We would like to highlight the commitment of the teachers from PI de Brug, a school for children with special needs, who each year create a fantastic event out of each Mission X activity making it attractive and useful for autistic children as well. The way these teachers explain and have the children perform the different activities is very motivating.

Our opening event has been great in many ways, the fantastic presentation of both Sander Koenen and astronaut André Kuipers enthusing and motivating children as only they can do and the opportunity for the Mission X children exploring the world from their own curiosity in NEMO Science Center.

The Mission X website has been greatly improved creating easier access, new tools and gadgets.





United Kingdom

21,500 Children
1,000+ Adults
302 Teams
166/290 Cities/Regions

Approach

Mission X is led by the UK Space Agency. The UK Space Agency works with Venture Thinking to deliver the programme. The programme is promoted using fliers and existing newsletter and through attendance at events such as the BBC Stargazing Live and Technopop and the Association of Science Education conferences. Increasingly, teachers are promoting the programme to their peers. Mission X is becoming increasingly popular with Scout Groups and home educators and with special schools.

A range of training events are organized – each year we try to identify a new location to develop interest. This year we have focused on Teesside. Further support is offered through a network of the European Space Education Resource Office Space Ambassadors who also host the website.

Schools are invited to or are encouraged to organize large regional launch and landing events. These have been hosted at the Royal Observatory Greenwich, Royal Aeronautical Society, Teesside University, Glasgow Science Centre as well as in schools such as Eastlea, Forest Hall, Kingswinford, and Northbury Primary School. These events provide a regional focus and kick off and generate enthusiasm amongst teachers and students.

Schools are provided with newsletter on a regular basis which invite them to take part in events, showcase resources, and provide suggestion on teacher training and funding support.

Major Points

Mission X is increasingly becoming embedded in the curriculum for many of the schools who have been taking part now for over 5 years. The schools see it as a way of delivering space and PE topics in a creative and cross-curricular way. Special features for Mission X 2015 have been:

The Mission X team were awarded a team award by the Royal Aeronautical Society for their outreach work. Google Hangout with Tim Peake and Rode Heath Primary School

Increased working with Sport Science departments at Teesside and Manchester Metropolitan University. Involvement of Space Physiology post graduate students from Kings College London in supporting sessions in schools.

Continued support from professional bodies such as Royal Aeronautical Society, Royal Astronomical Society, and from Science Centres.

Increased interest from special schools and home educator networks.

Continued support from the ESERO-UK office.
Increased engagement from home educators who have taken part in regional events as well as using the resources at home.

Increased use of the Mission X activities in large scale events such as BBC Stargazing Live where over 1500 students had an opportunity to take part in Bugs In Space, Speed of Light, Crew Assembly and Hydration Station.

The loan of the Sokol spacesuit from the Heinleinn Education Trust which has been used to engage interest in fitness.

Schools have used older students who have taken part in Mission X to 'train and mentor' younger students.
Developing relationships with the Chilled Food Association and Food and Drink Federation to help deliver the Taste in Space and Bugs In Space content.
The support of Tim Peake and Richard Garriot in tweets and blogs

International skype sessions with Colombia and with France

Involvement of Peter Habison and Tina Ibsen in UK events at Technopop during World Space Week.
Links with Cineworld and the use of Space Station 3D as a 'launch pad' for engaging student interest.

A PDF and paper handbook summarizing the challenge has been printed and given to participating schools.

Event at the House of Commons

The England Rugby 7s are supporting a Mission X event in the run up to the World 7s.

Schools have increasingly used twitter to communicate their successes and have been thrilled by retweets and favourites from Astronauts.

Support from Paolo Nespoli at events for Stargazing Live.

Samantha Cristoforetti has been an excellent ambassador and the opening video reinforced the idea that girls can be astronauts too.

Schools have gone to great lengths to be creative about delivery – there have been moon buggy races to celebrate Astro Charlie reaching the moon, rocket launches, school assemblies. Many schools have taken a whole school approach using Mission X as a focus for their Super Learning or Enrichment Days.



United Kingdom

Issues

Schools are still not fully using the blogs. This is for a variety of reasons including slow broadband, and lack of time. The schools who do use it find it invaluable as a learning tool and communication tool. Schools who do not use it themselves still enjoy watching what others are doing and it provides an impetus for new ideas.

The schools were disappointed to see the badges disappear as they achieved the different levels.

Schools are interested in new content so that they can extend the content to new classes without repetition.

The quantity of schools involved means that it is more difficult to monitor progress. However through opening and closing events, the Mission X co-ordinators have met with at least 25 schools. Email newsletters provide a regular communication point as well.

Providing and dispatching goodies such as flags and tshirts has proved to be a major logistical exercise. The schools love the 'goodies' but postage and time involved in packing is high.

Travel costs for schools to attend events is sometimes difficult for the more rural schools.

It would have been good to use the @trainastronaut twitter handle more.

The registration system has improved but it could do with a few more adjustments. We can improve the way to we check for spam registrations, with NASA missing some pretty obvious ones, and for double checks on all numbers. It's very time consuming. The system also doesn't distinguish schools with the same name as it doesn't provide addresses e.g. St Mary's, Northfield Primary.

Last minute changes in the ESA call in time for the Samantha Cristoforetti inflight call was unavoidable but makes it difficult for teachers to respond and get involved.

If NASA could answer non-country specific enquiries to their website rather than forwarding them to us, that would be helpful e.g. schools asking how to use the website or struggling to login. In the former case, I'm sure NASA could give a better explanation and, in the latter case, I often can't help as it's their website.

Participation in a closing event:

We have arranged a number of regional closing events. These have included events at the Royal Aeronautical Society, Glasgow Science Centre, Abraham Moss School, National Space Centre Leicester and at the University of Cambridge and at QinetiQ and at the University of Strathclyde.

Many schools have organized their own celebratory surveys and afternoons – for example La Hougette Primary School in Guernsey invited parents to sample activities.

Willingness to support future Mission X events: Will your country participate and support Mission X 2016? Yes, and excited about the prospect of Tim Peake, First British ESA Astronaut being in space to support it.

Testimonials

Children:

‘I have loved taking part in Mission X and my highlight was reading my speech at the House of Commons dressed as an Astronaut. Thank you Mission X ‘ from Hafsah aged 10 Temple Primary School

Harris – I’m happy that it improved my fitness. Shawlands Primary School

Fiza – I’m proud that we made it to the moon, Shawlands Primary School

My favourite activity was probably the Astro Agility Course (using a Skateboard-like platform) because I’ve often wondered what it is like in zero gravity. I loved working with Mission X and I wish I could do it again!

Dylan

My favourite activities were the Astro Agility Course, the Balance Training and the Explore and Discover. I also had fun doing experiments like the pizza experiment where we separated the fat from the other ingredients. Megan

I really enjoyed the Space Roll and Roll, the Astro Agility Course and the Crew Strength Training. I enjoyed them because we were really motivated and it was great fun! Beth

I really did enjoy Mission X! it was a lot of fun and I wish I could do it all over again! Jena

I enjoyed using the hoops to recreate going through the space-ship door. It was an interesting experience. I also set targets and challenged myself to achieve them. Soon I’ll be the best astronaut in all the UK! Erin

I enjoyed the Speed of Light activity because it allowed me to showcase my coordination. Cameron

I really enjoyed exercising with friends and training like an astronaut. I really enjoyed the balance activity – it was fun throwing the ball and trying to catch it while standing on one leg! Antoni

I really liked the Space Roll and Roll because I have a lot of energy to use up and it was hard work! Georgia



United Kingdom

It has given me new ideas about space! Jamie P5

We all had fun learning about the exercise they have to do and learning how they eat and the food and the space station. We learned alot. Kara P5

Mission X is a big thing for us, we're training like real astronauts. Louis P5

I have loved taking part in Mission X. It has been an amazing experience and I have loved every part. Since we started I have learnt a lot about the solar system and the universe. It has really inspired me to learn more about the universe. Olivia P5

Mission X is fun and keeps you fit and it shows you what astronauts have to do to train to go up to space. Anna P5

I learnt how and why astronauts train, the diet they need and the parts of the body they need to exercise. Also lots about each planet in the solar system and galaxies and the universe. Ellie P5

I've learnt so much I don't know where to start!
Stewart P5

Teachers:

'The whole project has been amazing ,the range of activities is just right ,well done everyone at Mission X, Can't wait till it starts again' June Kelly M.B.E lead astronaut Temple primary and Abraham Moss Warriors Football Club

I love Mission X and the children all respond very well to the programme. I will definetley participate again next year as a school but we may need to change the year group as it may not fit in with our curriculum at the P6 stage Shawlands Primary School

The Mission was the main body of the class' interdisciplinary learning. Before beginning the topic children learned about space travel, created a space station and researched the solar system. Missions were completed by every child and children were handed mission cards to use in their journals. Every challenge was photographed and this was used as journal evidence. Missions were demonstrated, planned and assessed by the class teacher using the resources provided and the adapted activity guides. A few of the challenges were further adapted due to resources and ability.

The highlights included 2 visits to the Glasgow Science Centre and many of the challenges were unforgettable.

The children were overjoyed seeing themselves on the blog and looking at the badges they had earned.

The best part was finding out we were second in the points standing and this being announced at the school assembly. Greenhills Primary School

The children have learnt so much from this project and have really enjoyed learning about space alongside it.

It has been a great project to teach too as it has given all the work a real meaning, providing the children with a context to refer to. Barnham School

We used Mission X to enhance PE in school and Science. This fitted well with our creative curriculum. This is the first time that we participated and so next year we will become more heavily involved. Thanks for a great resource!

I was enthused by the way the pupils supported each other particularly those who were struggling. Some have been motivated to take up sport outside of school, Mrs Fraser, Livingston Primary School.

The children in my class are really enjoying training to be an astronaut through our space theme in school. The children all have special astronaut training passes. Leane Rutherford, Ballynahinch Primary School, Northern Ireland

On average we would do a mission a week and then I would get the children to work out why that was important for astronauts and discuss this. We had a mission X display board which was added to each time we did a mission. The favourite mission was the hydration station and all the children talked about this for days after and told all the other teachers in the school. They also really enjoyed the Crew Strength Training mission. We went to the Glasgow Science Centre on the last day for the ending and the eclipse. Glassford School

This has been a fantastic project, thank you. Mission X has been a fantastic learning experience. It has given the children an exciting context for learning across so many areas of the curriculum, made relevant by its link to real life events. As a school we pride ourselves on our approach to International Education and our children's understanding of their place in the world, Mission X has taken the children beyond the international! Biggar Primary School

First, a big thank you for arranging the RAeS day. our girls really enjoyed the talks and activities and I have been able to reference the cartoon Tim talk as we worked our way through hydration station and living bones this week. Our accompanying parents were par-



United Kingdom

ticularly taken by the 3D printers. Second, sorry for not being active on the blog. Paperwork is becoming such a huge task that something has to give but I hope to get a lot on line over this half term week. Third, thank you for the printed version of the Mission X astronaut training guide. It is has been great to show visitors and colleagues. Sarum Hall School

Had to write to let you know that we had a fantastic day today! 'Best trip ever!' was routinely heard. Laura and staff were very attentive. I've already declared interest for next year if fortunate enough to be asked. Many thanks for providing the opportunity for our students to participate. Best of luck with the programme going forward. St Vincents

The whole topic captured the imagination for the children. The fact that most of the lessons were really practical and hands on appealed to everyone. Some-

times this did mean quite a bit of forward preparation and planning but it was well worth it. Clare Graham Queens Road Primary School, Cheadle Hulme.

As a group of home educators, the families met up every Monday when two new challenges were introduced. During the following week, the individual family teams would practice on these challenges and update the other families via What's App. The greatest achievement we made with Mission X is that children who were previously allergic to PE are now loving it. Each child was given a pedometer to measure their steps for the base station walk back – the parents said their children were so excited about the distances they can't wait to show and tell on Monday.

Mission X continues to be one of the most successful outreach programmes I have been involved in. Many teachers have now included it in in their annual work plan and it has become a highlight of their school year.





United States

4,700 Children
118 Adults
70 Teams
22/23 Cities/Regions

Approach

A new approach was taken this year for recruiting teams for Team USA 2015. Working with the Society of Health and Physical Education (SHAPE America) staff, Team USA listed a call-out for interested teams/schools in the fall SHAPE America newsletter. The result was an increase in number of teams/schools across the US, with more geographical diversity than in years past. A 40% increase in number of participants/students was seen from 2014.

Between September and December, Team USA leadership reached out to all participating site leads via telephone, Skype, Google+ Hangout, or email to provide an overview of the project, roles and responsibilities, dates, registration information, website details, etc. This was very helpful to new teams as well as returning teams since it also provided communication on new items that had changed from 2014 to 2015. In December, all site/team leads were asked to fill out a profile sheet that tracked the number of students and leaders per team, how frequently the teams met to perform the MX activities, how long they met, etc. This allowed the Team USA leadership to collect metrics to gauge the growth of the project.

Starting in September, a monthly newsletter was developed by the Team USA leadership and distributed to all site leads. The newsletter continued throughout the end of the challenge in March. Each newsletter contained relevant information such as upcoming dates and events, interesting space events happening at NASA, fun facts and pictures.

The profile and implementation of the challenge for Team USA 2015 was similar to previous years. The majority of the students participated in physical education class or science class, with a handful of others participating in an after-school setting, and also in day-services programs for adults with unique needs. This composition for Team USA is always a positive aspect of the project— that it can be adapted and customized to fit various implementations throughout the country.

Major Points

Team USA partnered with SHAPE America this year, gaining access to thousands of PE and health professionals around the country. This network allowed Team USA to grow in a fairly easy manner. The SHAPE America participants were eager and enthusiastic to participate in the challenge this year.

Another highlight was participating in the SHAPE America annual convention that attracted thousands of PE and health professionals. Mission X did a hands-on presentation of various activities with the audience.

Issues

More than half of the sites this year were new to MX, and Team USA leadership struggled with keeping in touch with all of them. There were a few sites that established initial contact and were very enthusiastic, but were not responsive once the challenge started. This problem is seen every year, and attempts to retain contact with them through various forms of communication are not always fruitful.

Another area of concern is the size of Team USA. Despite the growth seen each year, for the size of a country as big as USA one would think Team USA would be larger for Mission X. This is something the team leadership struggles with each year. Although a large surge in the number of participants would be great, the resources to manage Team USA do not anticipate any growth in future years. Therefore, a small steady growth has been a controllable approach to Team USA.

Participation in a closing event

Yes, Team USA held two virtual closing events using Google+ Hangout technology. Each session was one-hour in length and had similar agendas. This year's

events were focused on healthy eating habits. A fun interactive game was played with the participating sites where they had to run and choose a food/drink item from a box and present it to the NASA team for discussion. The NASA team consisted of an astronaut, space food expert, Mission X leadership, and Team USA leadership. The students were also able to ask questions to the astronauts and space food experts about healthy eating/living habits, and life as an astronaut. The first event had two sites participate and the second event had four sites participate. The first event also had an Astronaut Strength, Conditioning, and Rehabilitation Specialist (ASCR) who shared his experiences with training astronauts.

Did your students participate in the pre-surveys?

Yes, over 220 matched

Did your students participate in the post-surveys?

Yes, over 220 matched

Recommendations for future Mission X events

The International Working Group (IWG) meeting was very successful this year, with two full days of meetings and then a half day for an educational event at a local Roma school. This year had the most support from countries and the format/schedule of the IWG is recommended to continue for future meetings.



United States

Willingness to support future Mission X events:
Yes

Testimonials

“Here is a picture of our Mission X quilt that our entire school put together. We are going to send it to Cristina Olivotto and her students in Switzerland. We also have approximately 70- 4th and 5th grade students who wrote letters to her students.

Thank you Scott for connecting our schools!! Our students can't wait to receive the letters from Switzerland!” -Ed White Elementary

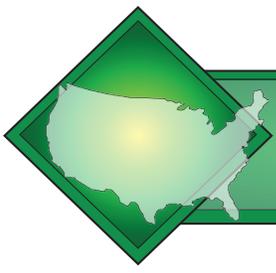
“We appreciate the invitation to participate again on Mission X. We are very proud about last year's representation of our country in this competition. For that reason, we decided to participate again in this adventure.” -Puerto Rico

“We're having fun keeping fit and training like an astronaut!” -The Resource Center

“In addition to being physically fit, it is important for the Eaglets to work as a team to solve problems and to overcome real life obstacles, We had a great sense of accomplishment after building a safe shelter!”
-Heights Elementary

Mission X continues to be a very fun and engaging project to work on, seeing a project from the management level to the “boots on the ground” level. One of the most enjoyable aspects of the project is getting to know the site/team leads for Team USA. Unfortunately, as the size of Team USA grows, it becomes more difficult to keep in great touch with so many people. However, this is a crucial aspect of running a successful Team USA and will continue to be pursued in future years.





United States



