

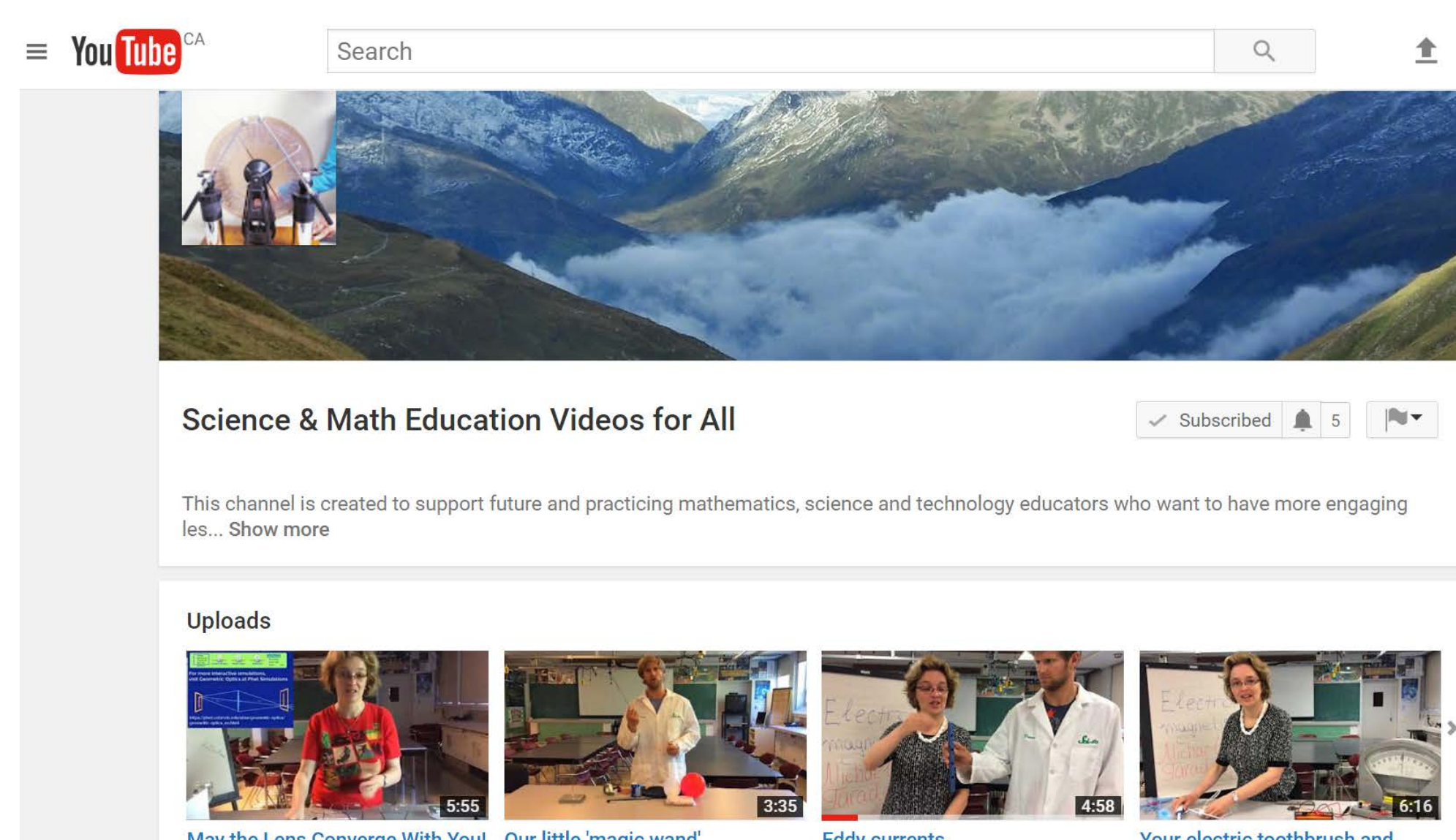
STEM Education Videos for Teachers & Students

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Project Summary

This project creates a database (hosted on a YouTube channel <https://tinyurl.com/kfospkb>) of short videos demonstrating STEM experiments and hands-on inquiry activities relevant to the K-12 curriculum. The database is used to support Teacher-Candidates in the UBC Faculty of Education in their courses, on practicum and post graduation. It is open to the general public.

These videos originate from hundreds of low-cost, safe, and 'green' hands-on STEM stations presented by the Teacher-Candidates to the general public during the annual Family Math and Science Day.



Family Math & Science Day

- Since 2010:** 1000+ visitors, 350+ Teacher-Candidates, 150+ exhibits and experiments
- Activities align with the new BC K-12 curriculum, focus on hands-on inquiry
- Activities are cheap, doable in schools on a 'shoestring budget'
- Use 'green' recyclable/ sustainable materials
- Teacher-Candidates develop creativity, confidence, & skills for practicum and beyond

Overall Objectives:

To amplify the effect of STEM outreach – Family Math and Science Day – and to further its impact on all Teacher-Candidates and instructors in the Faculty of Education and on the larger community.

What's in the Database?

In order to achieve the above objectives, we created a YouTube Channel that:

- contains a list of videos of successful activities
- includes descriptions with photos, videos, pedagogical suggestions, etc.
- is annually updated by Teacher-Candidates and project leaders
- serves as a teaching resource for Teacher-Candidates during the practicum and beyond
- instills confidence, ownership, and expertise in inquiry-based teaching (New BC Curriculum)

Family Math & Science Day 2016

UBC President, Dr. Ono (third from left) and his wife Wendy (second from left) came to celebrate STEM with us. Also in the photo: EDCP Head, Dr. Nashon (first from left), Dr. Milner-Bolotin, Dr. Tan and a Teacher-Candidate volunteer.



Project Work Plan & Timeline

First Stage (accomplished)

Recording videos of the 25 most successful experiments. Creating a template for the videos, piloting it with test videos, collecting feedback, creating a YouTube channel to host the videos.

Second Stage (in-progress)

Implementation of the database in relevant methods courses and inviting Teacher-Candidates to contribute.

Third Stage (in-progress)

Refinement of activities, database expansion, & feedback. Recording of videos in all STEM fields.

Family Math and Science Day October 15th, 2016

(Top) Dr. V. Milner explains how an infra-red camera works to the group of children and their families.

(Bottom) Young scientists in action.



Expected Project Outcomes

- The UBC Faculty of Education will have an interactive database of videos (including all the documentation) of 100+ STEM hands-on activities to support Teacher-Candidates during the practicum and beyond
- Teacher-Candidates will develop confidence to teach by inquiry using hands-on activities as required by the new BC Science curriculum
- Teacher Education Office (TEO) will get a resource for STEM and elementary teachers to encourage them to adopt inquiry approach
- EDCP faculty members will use the resource in their teaching that promotes continuity from year to year
- More UBC STEM students might consider teaching as a profession (through outreach)
- UBC will contribute to the community by supporting K-12 teachers outside of UBC and promoting STEM outreach.

References

- 1.UBC Faculty of Education Family Math and Science Day: <http://blogs.ubc.ca/mmilner/outreach/family-math-science-day-at-ubc-faculty-of-education/>
- 2.Mathematics and Science Teaching and Learning through Technology TLEF-funded project (2012-2015) <http://scienceres-edcp-educ.sites.olt.ubc.ca/>

Acknowledgements

- UBC Teaching and Learning Enhancement Fund (2012-2017)
- UBC Faculty of Education
- UBC Department of Curriculum and Pedagogy (EDCP)
- UBC Teacher Education Office (TEO)
- UBC Pacific Institute for Mathematical Sciences (PIMS)
- UBC Department of Physics and Astronomy

