

Ignite Wonder Empower Dreams Explode Soda

Informal and formal education
working together

Dr. Sandra Eix
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Science World British Columbia



Territory recognition

I would like to acknowledge that we are gathered today on the traditional, unceded territory of the Coast Salish people – the Musqueam, Squamish and Tsleil-Waututh





Informal Science Education

Roots in the 60's



Ontario Science Centre, Toronto 1969

Exploratorium, San Francisco 1967

Something Incredibly Wonderful Happens: Frank Oppenheimer and the world he made up (K.C. Cole)

It looks like fun...

But they're probably not learning much



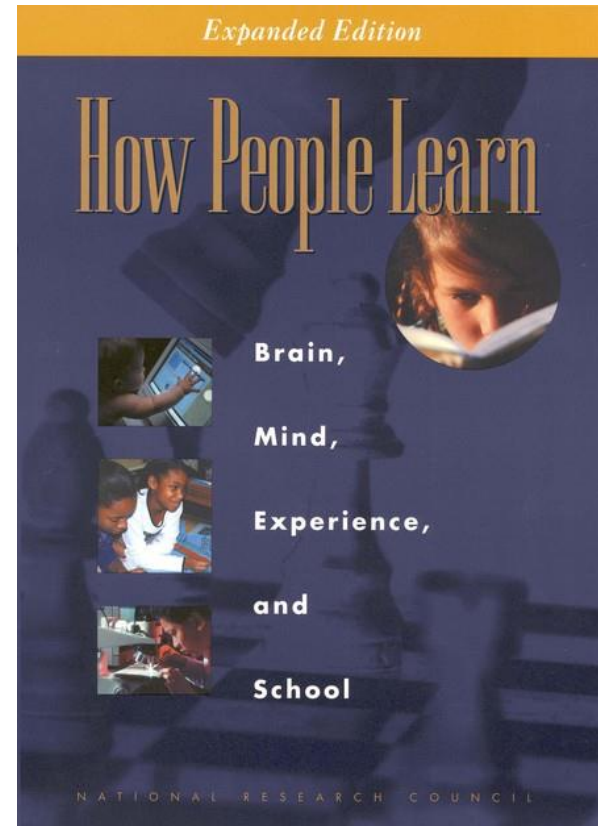
The Museum Experience

1992, by John H Falk and Lynn D Dierking

How People Learn

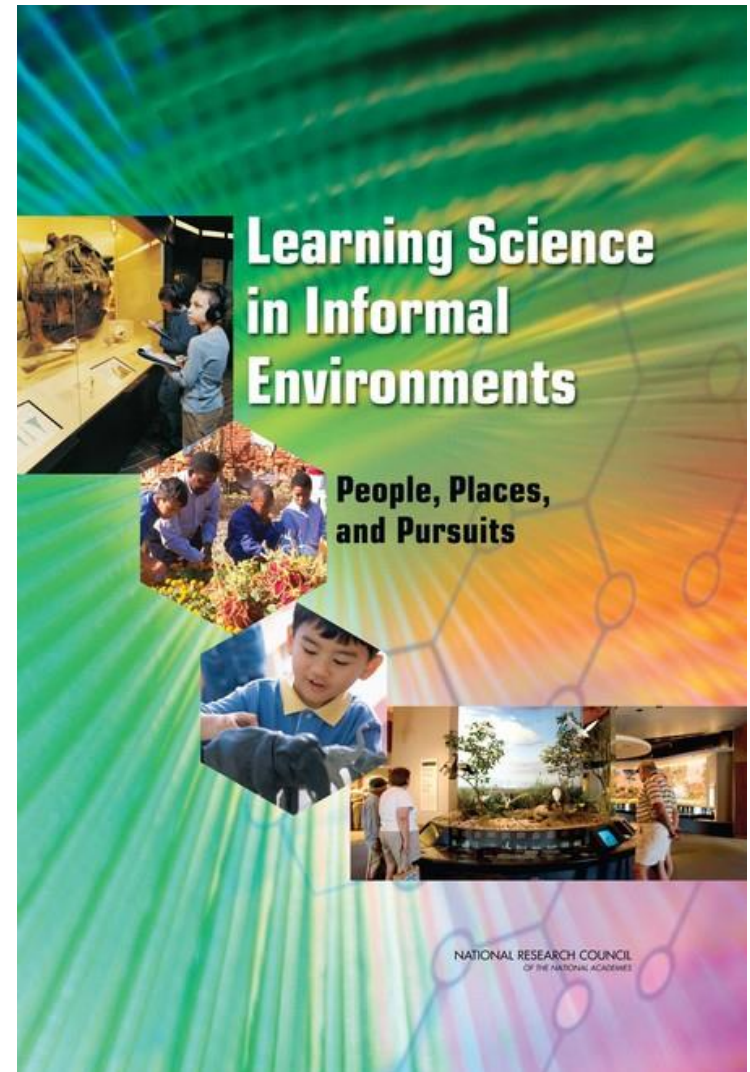
2000 National Academies Press

National Research Council; Division of Behavioral and Social Sciences and Education; Board on Behavioral, Cognitive, and Sensory Sciences; Committee on Developments in the Science of Learning with additional material from the Committee on Learning Research and Educational Practice,



Learning Science in Informal Environments

2009, Philip Bell, Bruce Lewenstein,
Andrew W. Shouse,
and Michael A. Feder, Editors



Strands of Informal Science Learning

1. Developing interest in science
2. Understanding science knowledge
3. Engaging in scientific reasoning
4. Reflecting on science
5. Engaging in scientific practice
6. Identifying with the scientific enterprise

What's STEM learning like in 2019?

Unprecedented need for expertise and engagement

BUT

- 2008-09 over a million university students, about 19% in science, math, engineering. In 2016 23% in STEM fields
- US – in 2009, only 30% of hs graduates took bio, chem and physics in high school.
- US – in 2012. About 20% are taking no science in grade 11 – disturbingly, 11% no math
- 2010 angus reid poll – 37% of 16-18 year olds were interested in taking even one post-sec science course.

AND

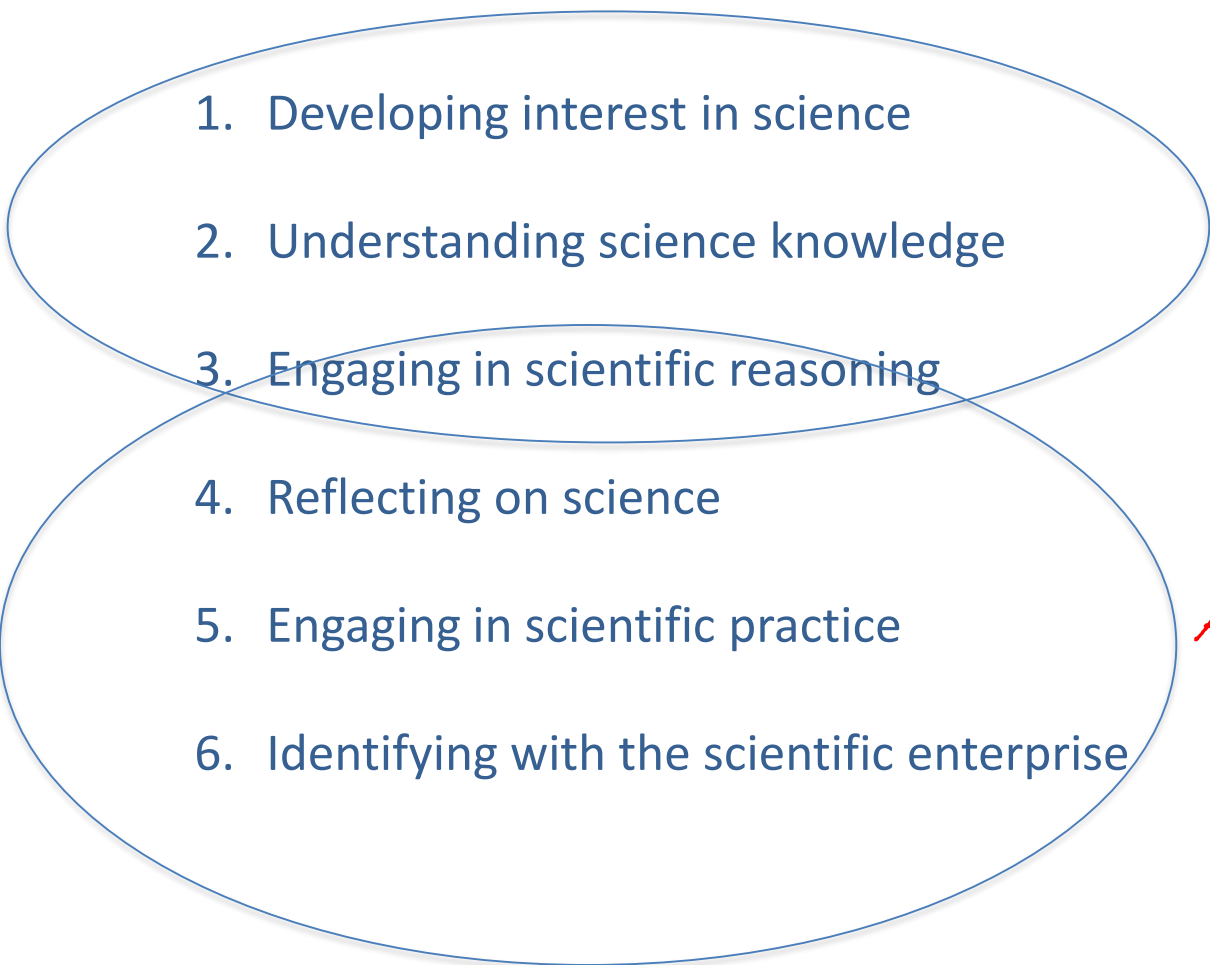
Even K-12 students spend only 18.5% of their waking time in formal learning environments

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*Traditional
science centre
happy place*

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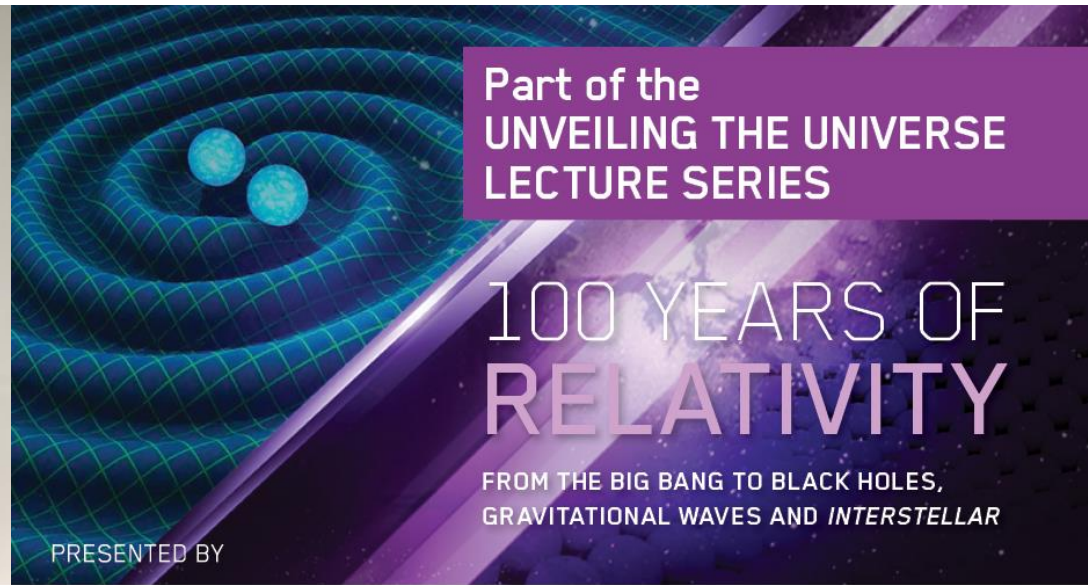
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A place to grow!

Collaborating to complement our strengths!

A comfortable place to explore challenging ideas

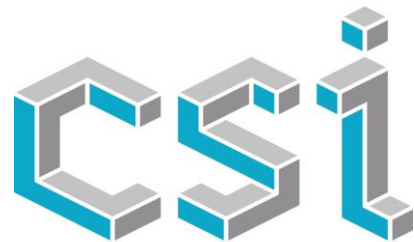


SCIENCE
WORLD
BRITISH COLUMBIA



Collaborating to complement our strengths!

A meeting place for scientists and the public



community
scientist
initiative



Collaborating to complement our strengths!

Mentorship for schoolteachers and students



Collaborating to complement our strengths!

Pro-D and mentoring for teachers



Collaborating to complement our strengths!

Inspiration and enrichment for STEM keepers



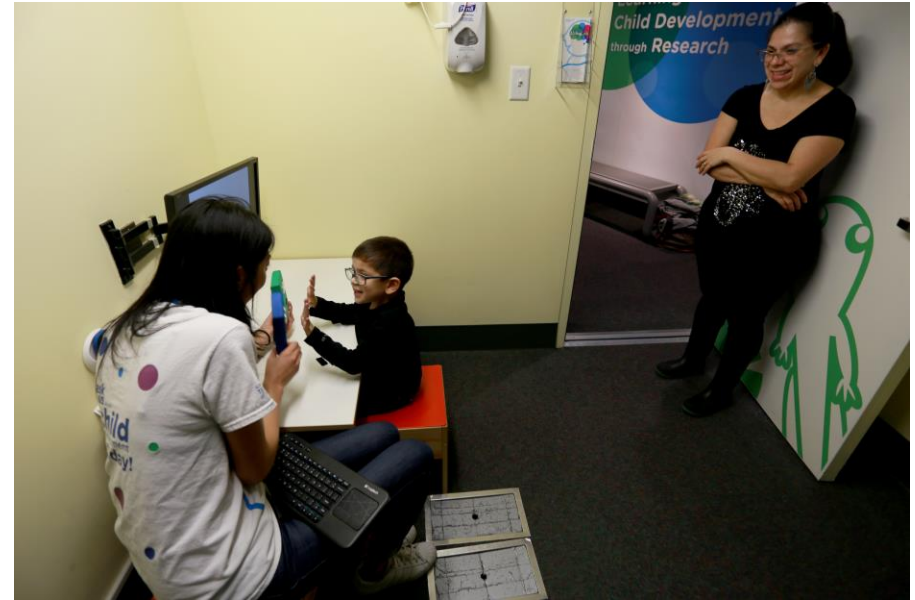
Collaborating to complement our strengths!

Connecting teens to post-secondary choices



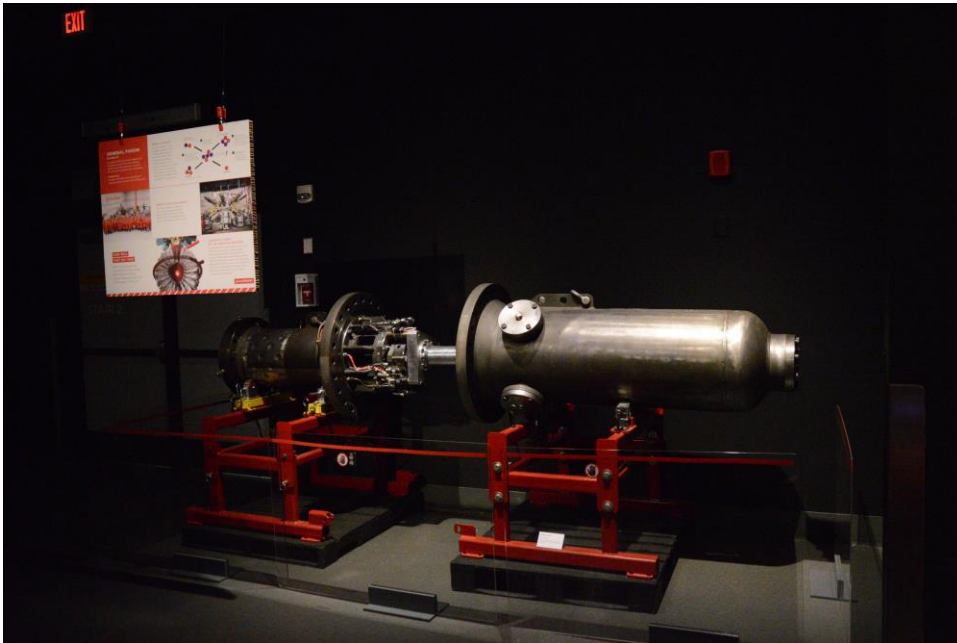
Collaborating to complement our strengths!

Doing child development research where the kids are

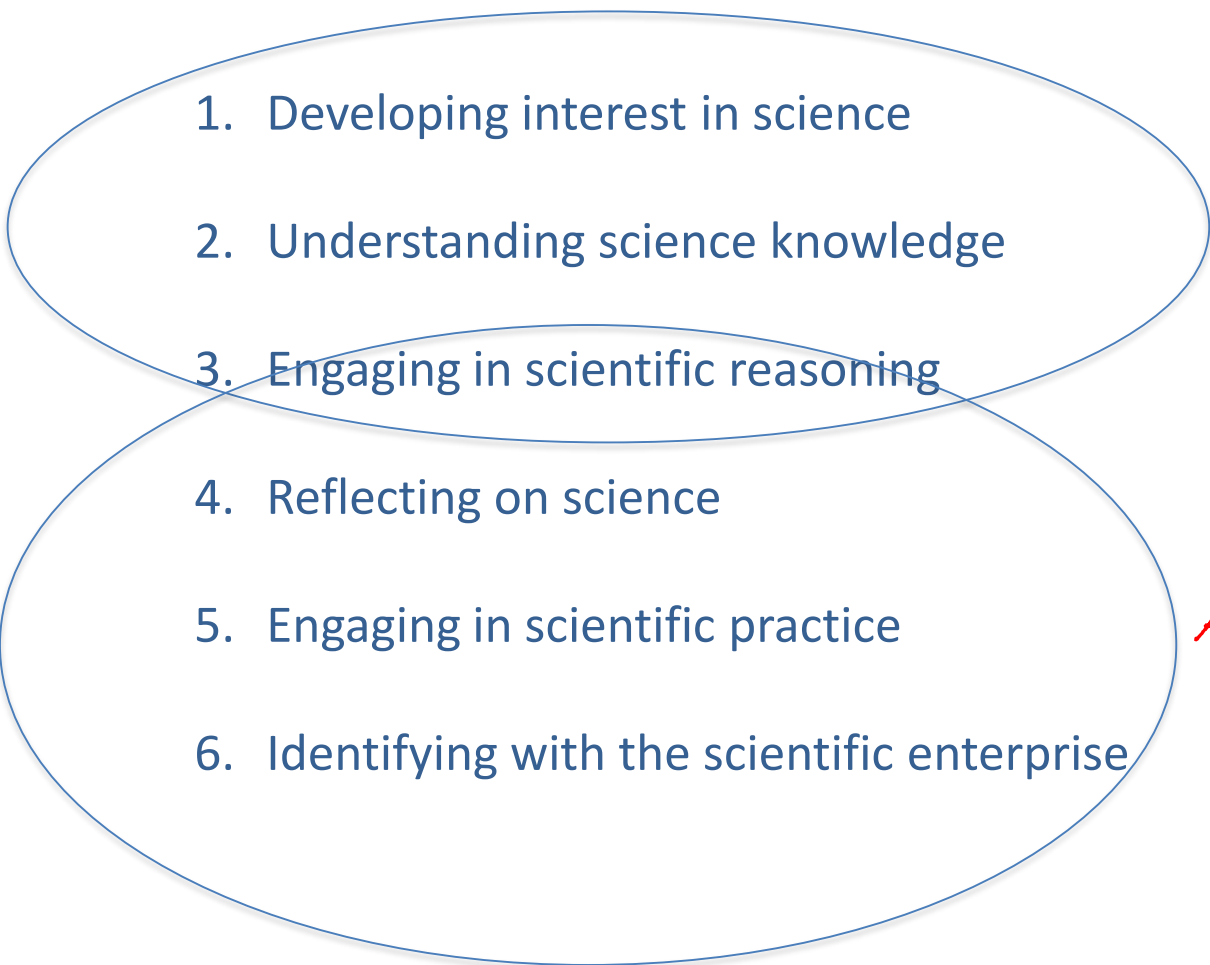


Collaborating to complement our strengths!

Showcase for new technology and discovery



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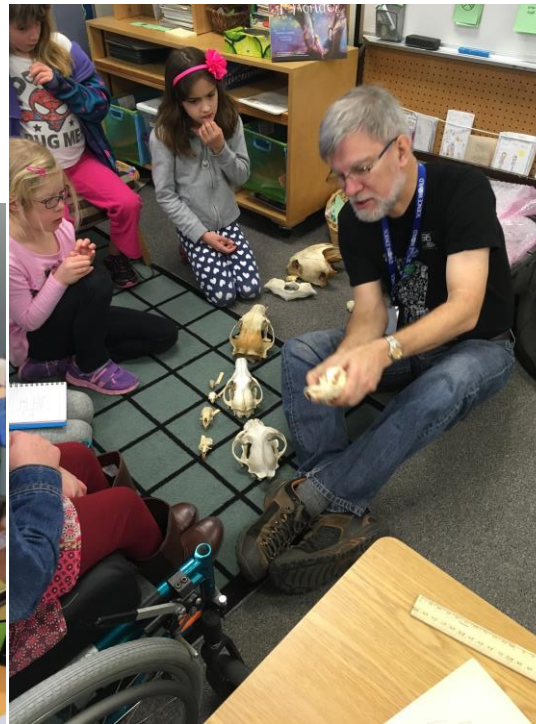
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What's next: Symbiosis

- A STEAM (Science, Technology, Engineering, Art & Design, and Math) learning ecosystem
- Deeply collaborative web of interlinked organizations that offer STEAM learning opportunities



- Within five years, every learner in BC will have equal access to STEAM learning resources and opportunities.



**Ignite Wonder
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Stay connected!**



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