



Vision

To reward teachers looking to provide their students with a sense of wonder and excitement about learning by bridging the gap between formal and informal learning.

BRIDGING THE GAP BETWEEN FIELD TRIPS AND THE CLASSROOM

MOF Wild About Science Symposium 2012

Josée Lebel

Free-Choice Learning

- “the learning people do when they get to control what to learn, when to learn, where to learn, and with whom to learn.” *Falk and Dierking*
- **perceived** choice & control by the learner

“We are now at a point where we must educate our children for what no one knew yesterday and prepare our schools for what no one knows yet.”

(Margaret Mead, 2001)

Before the field trip...



- Decide on 2-3 learning objectives for the field trip
- Reconnaissance mission
- Collect student questions
- Design a challenge
- Design supporting materials
- Student-centered orientation session
- Chaperone info package
- Suggested pre-field trip activities? Noteworthy:
 - [PNE Teacher Resources](#)
 - [Aquarium Teacher Resources](#)
 - [MetroVancouver Watershed Teacher Resources](#)

Challenge Ideas

FREE-CHOICE

1. Expedition model

- use information gained on field trip to solve a **challenge**
- students choose 3-4 stations out of a larger set (jigsaw)
- each station invites student to reflect on how the information applies to the challenge
 - debate
 - proposal
 - solution
 - build
 - solve
 - create
 - invention



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Example: Design a Skyscraper!

- Exciting news! A design competition has just been announced by a company building a brand new skyscraper in New York City. It will need to contain a mixture of offices, homes, and retail shops. Your task is to create a drawing or model of your design to present to the client. At the end of this competition, the client will select a skyscraper design to build.

Example station:

WHAT TO DO

- Read and observe some of the panels highlighting different skyscrapers.
- Sketch two skyscrapers that interest you.
- Compare and contrast them!

CONSIDER THIS

- What shapes, colors and materials do you observe in these skyscrapers?
- What features will you include in **your** skyscraper design?

Excerpt from a Liberty Science Center Discovery Challenge

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Challenge Ideas

FREE-CHOICE

2. Exhibition model (photo or physical)

- based on students' interests throughout unit
- collect information to support their exhibits
- rubric scaffolds the exploration while giving students choices

Newsletter to parents

Narrative

Wanted Poster

Role-playing

Self-guided tour

Video

Presentation

Performance

Interview



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Example: Photojournal

- Explore all of the galleries at the Vancouver Aquarium. Take a photograph illustrating the scenarios below. Using a scientific lens, **write a caption for each specific photograph** that describes the particular animal interaction, abiotic/biotic factors, adaptation, and/or environmental factor at play in the photograph.
 - a) a symbiotic relationship
 - b) an amphibian with warning colouration
 - c) an animal demonstrating camouflage
 - d) an example of a behavioural or physiological adaptation of an animal
 - e) scenario of your choice

Worksheets

*traditional fill-in the blank worksheets **DON'T WORK***



A good worksheet:

- gives students a **choice** of where to spend their time
- allows students to discuss and compare
- uses open-ended questions
- Invites inquiry, observation, investigation, exploration, connection, hypothesis, inference, and generalization.

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Creating open-ended questions

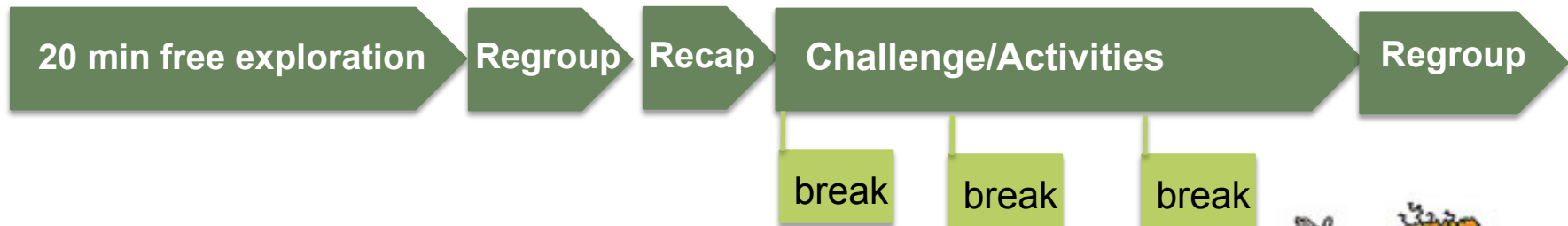
- How big is a blue whale?
 - What are the advantages & disadvantages of being the size of a blue whale?
- When did the Tyrannosaurus Rex become extinct?
 - How did the extinction of the T. Rex compare with the extinction of other dinosaurs?
- Should Pluto be considered a planet?
 - What is a planet?
 - Does Pluto fit that definition?
 - Why was Pluto initially called a planet?

General Worksheet

- if loosely PLO-connected, use the SCIENTIFIC METHOD
- students choose 3-4 exhibits to apply the scientific method
 - what was your hypothesis/how can you make this happen?
 - what did you do?
 - what was your control?
 - how many times did you repeat the experiment?
 - what is your conclusion?

During the field trip...

- **Free-choice learning:** **perceived** choice and control by the learner (reasonable and desirable learning choices)



- Hand out materials (expedition booklets, cameras, smartphones, iPads)
- Get involved:
 - teach through instructional conversation
 - make meaning
 - engage in a joint productive activity
 - Take chances, make mistakes, and get messy!



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When to go?



- Start: stimulate interest; build on that interest while you teach the rest of the unit
- Middle: to reinforce previous concepts and to refer to in future concepts
- End: review key concepts and apply what they have learned

Best time to go:

2-3 weeks after the start of a unit

Chaperone Orientation

- create a one-pager for chaperones that contains
 - an itinerary
 - meeting places
 - examples of guiding student inquiry
 - explanation of the challenge and how they can help
 - list of student names, medical conditions, your cell #



Connecting with Scientists and STEM Companies

- Mitchell Odyssey Foundation > Career Discovery
- Science World
- Let's Talk Science (UVic, UBC, SFU)
- LinkedIn
- CNN Money > Small Business > Innovation Nation (money.cnn.com)
- BC Business (bcbusinessonline.ca)

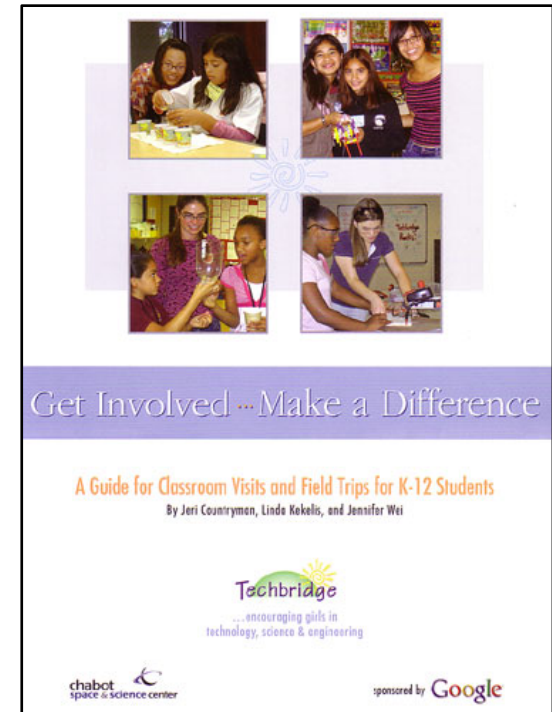
Career Discovery Field Trips

Before	During	After
<ul style="list-style-type: none">• Prep the speaker• Show company's promotional video• Students research available careers• Prep students on respect• Request male + female staff	<ul style="list-style-type: none">• Specialist introduction• Hands-on activity• Tour (if applicable)• Q & A• Informal time if possible• Give speaker a school memorabilia gift	<ul style="list-style-type: none">• How was field trip related to what they are learning?• How is Math and Science related to company's products?• Are there internships and scholarships available?• Find out what the students liked and to improve for next time.• Send feedback and thanks to presenter

Help the speaker out...

Ahead of time, send him/her:

- your unit outline including vocabulary list
- your sample questions for Q & A
- **Get Involved. Make A Difference.**
A Guide for Classroom Visits and Field Trips
for K-12 Students (www.techbridgegirls.org)



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Career Discovery Example

Skype phonecall with FRX Polymers president Marc Lebel (grade 9 Science)

Itinerary

- 8:40am Show the CNN Clip
- 8:45 am I'll call you on Skype
Introduction to the class
Your presentation
- 8:55 am Q&A
- 9:05 am Aurevoir



- Plan questions to get the discussion going:
 - What subjects interested you in high school?
 - What did you study in University – did you change your mind?
 - Why did you decide to develop this type of plastic?
 - How do you use the properties of the periodic table in your product?
 - We're learning about electricity and what causes short-circuits. What types of damages could be caused by short-circuits?
 - In what types of products do you plan on using your plastics?
 - Are teamwork/communication/problem-solving/brainstorming skills important in your company?

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Beg for Resources!

- Beyond the Blackboard advocates for informal learning organizations to provide teachers with motivating, relevant and engaging resources to enhance the learning experience.

Ask for field-trip related materials in your evaluations!

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References

[BC Field Trips \(bcfieldtrips.ca\)](http://bcfieldtrips.ca)

[Beyond the Blackboard Educational Consulting](http://beyondblackboard.ca) > Learning Resources (beyondblackboard.ca)

[Liberty Science Center](http://lsc.org) > Education > Field Trips > Discovery Challenges (lsc.org)

[Techbridge](http://www.techbridgegirls.org) > Role Models > Resources (www.techbridgegirls.org)

[Let's Talk Science](http://letstalkscience.ca) > Outreach Sites > British Columbia (letstalkscience.ca)

[Science World](http://scienceworld.ca) > School Resources > Scientists in Schools or Careers in Science (scienceworld.ca)

[Mitchell Odyssey Foundation](http://m-o-f.org) > Career Discovery (m-o-f.org)

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