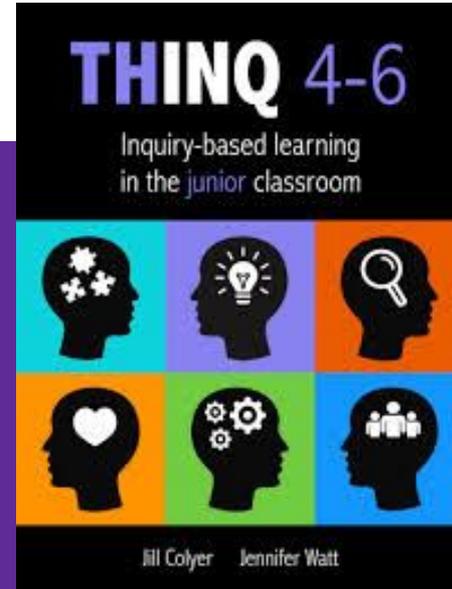


THINQ

Inquiry-based Learning

WELCOME!

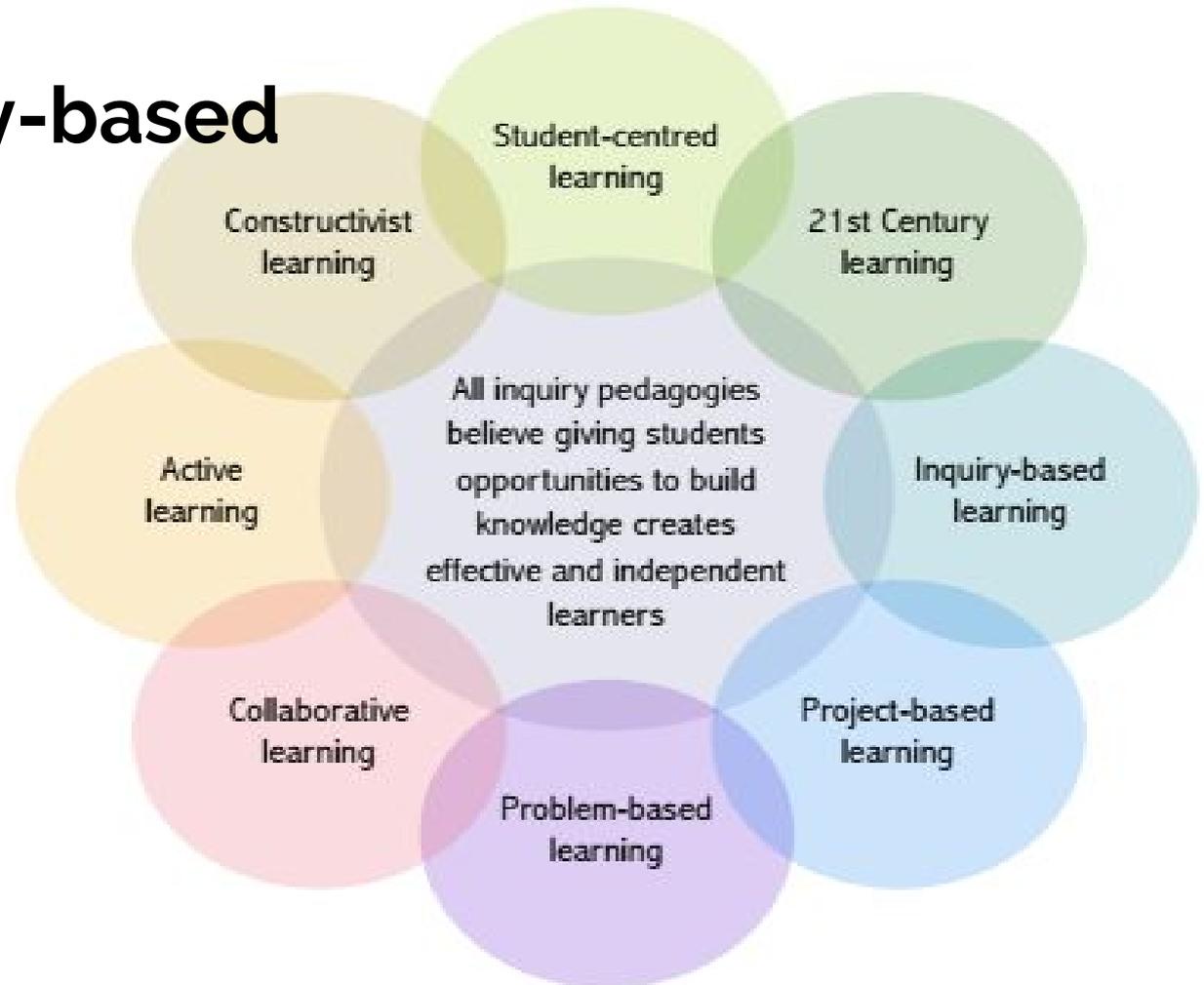
Jennifer Watt
co-author of THINQ 4-6 and 7-9



Agenda

1. **Inquiry 101**
2. **Questioning: The fuel to inquiry learning**
3. **10 Steps to doing more inquiry**
4. **Making sense: helping learners to reason**
5. **How do you assess inquiry?**

What is inquiry-based learning?



Is it inquiry?

Yes, if it has these 3 essential traits.

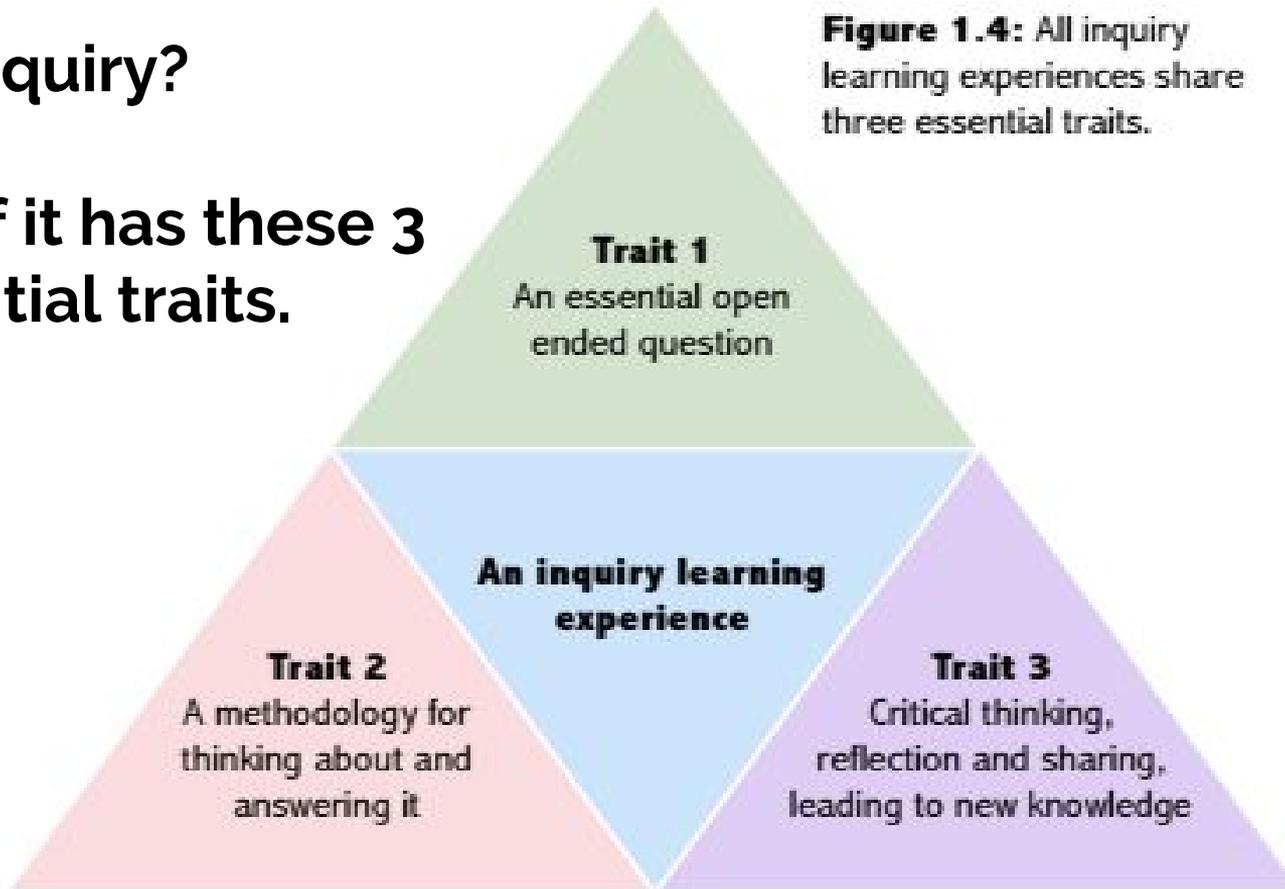


Figure 1.4: All inquiry learning experiences share three essential traits.

Inquiry Skills



Source: *ThinQ 4-6*

Myths and misconceptions- Are any of these obstacles for you?

- 1. The teacher has no control.**
- 2. It takes too long.**
- 3. It's too hard for young learners.**
- 4. It's difficult to assess.**
- 5. It's the best learning strategy and should be done all the time.**

The Inquiry Continuum

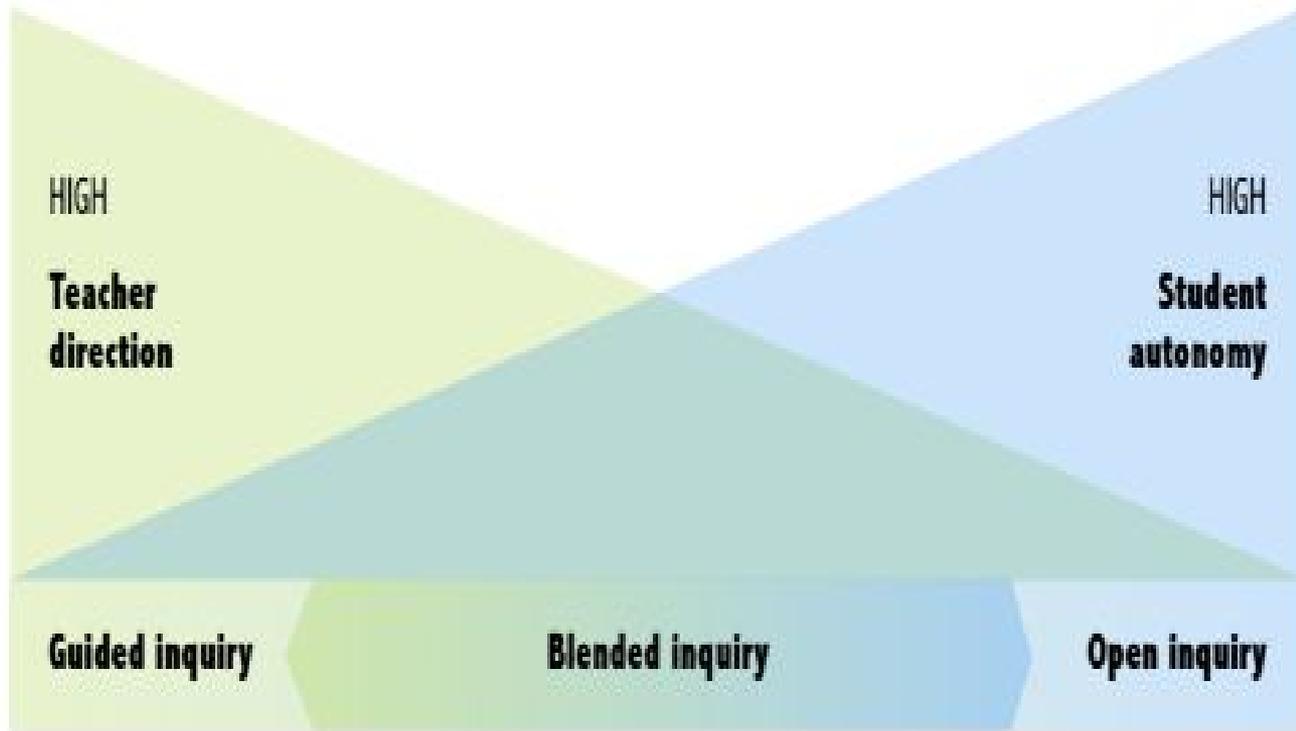


Figure 1.?: The inquiry continuum - As you move from guided to open the level of student autonomy increases and teacher direction decreases.

Inquiry Dispositions

Curiosity

Eagerness to learn
or know something

Criticality

Objective analysis
and evaluation

Hopefulness

Feeling or inspiring
optimism about the
future

Open-mindedness

Willingness to
consider new ideas

Questioning: The fuel to inquiry learning



Questioning

Why are questions important?

Why do we want students to be curious?



What type of questions do my students ask?

What type of questions would I like my students to ask?

In what ways do I encourage questioning?



**Wonder Activities or Provocations that ignite
curiosity and promote questioning**









Assessment considerations arising from the **content** of a student's question

What does this question tell me about this student's interests and curiosity?

What does this question reveal in terms of gaps in this student's content knowledge?

What evidence of existing content knowledge does this student's question reveal?

Does this question build on recently learned information or experiences, thereby revealing a consolidation of learning?

Assessment considerations arising from the **quality** of a student's question

Does this question represent this student's ability to make connections among ideas?

Does this student tend to ask questions that are fact-based or higher-order in nature, or a combination?

Has this student shown growth in the kind of questions that they ask?

Tools to help students with questioning skills

Question Words ?



What ?

It's used to ask about specific thing, people, animal, object.



Which ?

It's used to ask about choice, alternative.



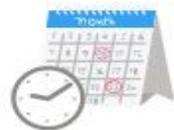
Where ?

It's used to ask about place, position.



Who ?

It's used to ask about people, person.



When ?

It's used to ask about time, occasion, moment.



Whose ?

It's used to ask about who the possessor of something.



Why ?

It's used to ask about reason, explanation.



How ?

It's used to ask about condition, quality, may, manner, form events and the way things.

Questioning Grid

	Is / Are	Did / Do	Can	Would / Should	Will	Might / Could
What	Factual			Predictive		
Where						
When						
Who						
Why	Analytical			Application	Synthesis	
How						

Asking / Developing a Question



ROBOT: who is...? when is...?
(surface) what is...? where is...?



DETECTIVE: why is...? what is...?
(digging) what caused...?



JUDGE: who would...? Who might...?
(digging deeper) do you agree...?
in your opinion...
where could...?



INVENTOR: why would...? how would...?
(developing understanding) how might...?
what would you...?

Created by: Ruggero Racca
Photo: Zelia Capitaio-Tavares

Questioning: A one-point rubric

Areas that need work	Standard for asking questions	Exceeding expectations
	Student asks questions from different points of view.	
	Student ask questions that can be investigated (not too broad or too narrow).	
	Student produces, improves and prioritizes questions.	

10 Steps to doing more inquiry

1. Start with a guided inquiry.
2. Determine your broad curricular targets.
3. Develop rich inquiry questions from your targets.
4. Locate and collect age-and grade-appropriate sources to drive the inquiry.
5. Build in opportunities for ongoing collaboration, sharing and reflection.
6. Create an assessment and evaluation plan.
7. Create and reinforce vocabulary to communicate inquiry thinking.
8. Help students make sense of the evidence.
9. Assist students in drawing conclusions based on their evidence.
10. Include time to reflect on and share conclusions.

Guided Inquiry: An Example

Step 1: Create an inquiry question

Step 2: Use an evidence bundle

Who am I?

Who should lead? Who should follow?

How could I be a better friend?

What makes a good community?

How do you decide whether a book/website
/song is good?

How do we know?

What is my responsibility?

What is fair?

What is where, why there, and why care?

What strategy should I use?

How do I live a healthy life?

INQUIRY QUESTIONS

**Moving from questions to
investigation . . .**



Plan and enact a guided inquiry

1. Determine an inquiry question.
2. Locate age-appropriate sources that consider multiple perspectives (evidence bundle).
3. Gradually release each source one at a time and —have students ask questions.

Guided Inquiry example

Inquiry Question

How did Canadian government policies impact the identity of Indigenous Peoples?

Evidence Bundle

- Two photographs
- An excerpt from the Aboriginal Affairs and Northern Development Canada website
- An excerpt from a story from Nunatsiaq News, An Iqaluit newspaper



Non-indigenous Canadian government agents had trouble with Inuit names and naming traditions so they classified people according to assigned numbers rather than actual names.

In 1941, the Canadian government introduced an identification system to help them more easily identify and track the Inuit. Every Inuit was given a disc stamped with a four-digit number. The Canadian government kept a record of Inuit and Christian names, along with the disc number, or E [Eskimo]-number, given to each Inuk. The discs were approximately the size of a quarter with a hole punched in the top, so they could be worn on string around the neck or wrist. They were made from pressed fibre and stamped with the Canadian Coat of Arms as well as the four-digit number.





Kuujjuaq woman Olivia Ikey Duncan shows off her new tattoo.

“Sarah Rogers, a Kuujjuaq woman brings back symbol of Inuit past.” Nunatsiaq News, December 4, 2013.

I cried so much that day--I couldn't believe that my people had gone through that and survived" she said. "How they were categorized, and how they were treated . . . That's when I said 'that's my tattoo.'

"How can you be proud of yourself when you don't understand where you come from."

Building Inquiry Evidence Bundles

In 1941, the Canadian government introduced an identification system to help them more easily identify and track the Inuit. Every Inuit was given a disc stamped with a four-digit number. The Canadian government kept a record of Inuit and Christian names, along with the disc number, or E [Eskimo]-number, given to each Inuk. The discs were approximately the size of a quarter with a hole punched in the top, so they could be worn on string around the neck or wrist. They were made from pressed fibre and stamped with the Canadian Coat of Arms as well as the four-digit number.

"I cried so much that day — I couldn't believe that my people had gone through that and survived," she said. "How they were categorized, and how they were treated... that's when I said 'that's my tattoo.'"

... Before she decided on her tattoo, Duncan researched the history of the tags, and how Inuit were administered — a history she wishes was more available to Inuit youth today.

For Duncan, that part of her family's history seems so close — yet so far away for a generation, like hers, who grew up without them.

But people are trying to understand now and they want their discs back, to keep as a part of our history," she added.

"How can you be proud of yourself when you don't understand where you came from?"

Photo caption: "Non-indigenous government agents had trouble with Inuit names and naming traditions so government agents classified people according to assigned numbers rather than actual names."



Using Evidence Bundles

How could you build on this evidence bundle?

What type of evidence bundle could you create for a guided inquiry for your students?

What is Marine Debris?

Marine debris is any man-made, solid material that enters waterways directly through littering or indirectly via rivers, streams and storm drains. Marine debris can be simple items such as a discarded soda can, cigarette butt, or plastic bag that ends up in the ocean potentially harming marine life. Nearly 80 percent of marine debris originates from land-based sources. Lost or abandoned commercial and recreational fishing nets, lines, pots, and traps are another form of marine debris, categorized as derelict fishing gear (DFG). These items, whether discarded intentionally or lost accidentally, may sit on the seafloor, get caught on rocky or coral reefs, or float on the ocean surface. The majority of this lost gear does not decompose in seawater and can remain in the

Inquiry Questions

- How does marine debris harm humans?
- How does marine debris harm the ocean ecosystem?
- What actions can I take to reduce marine debris?

NG website



Ocean Trash: 5.25 Trillion Piec...
The numbers are staggering: T...
national geographic news



Marine Debris
Marine debris is the trash that ...
youtube

Garbage Patches

The name "garbage patch" is a misnomer. There is no island of trash forming in the middle of the ocean nor a blanket of trash that can be seen with satellite or aerial photographs. This is likely because

National Ocean Service Website



| OR&R's Marine Debris Program
Marine debris is defined as any

Plastic Marine Debris

- What can we do?
- Get involved! Participate in local cleanups in your area.
 - Remember that the land and sea, no matter where you are, are connected.
 - Reduce the amount of waste you produce.
 - Reuse items whenever possible. Choose reusable items over disposable ones.
 - Recycle as much as possible. Bottles, cans, cell phones, ink cartridges, and many other items can be recycled.

Marine Debris Infographic



Marine Defenders website

Good suggestions for prevention - how individuals can help.



Marine Defenders: Marine Deb...
Hawaii's Nets to Energy Progra...
marinedefenders



My Thesis Statement
In society now zoos should be banned

Article
<http://www.telegraph.co.uk/news/2017/03/15/boys-beat-flamingo-death-czech-zoo/>

Video 1
<https://www.youtube.com/watch?v=lz1vulAlOuM>
Unfortunately a bear got killed after escaping from a closed enclosure. Zoo keepers say that sedating the bear would take too long to travel.

Video 2
<http://www.cbc.ca/player/play/695117891718>
In this video shows a gorilla getting its life taken away because of a kid who fell in when it was actually the moms fault for not taking care of the baby. They killed the gorilla saying its too dangerous having to save the kid with the gorilla being alive.

Video 3
<https://www.youtube.com/watch?v=I09lappOays>
In this video shows 2 male lions together at a zoo but 2 male lions cannot be together. There would normally be 1 male lion in each pack and the rest would be female lions.

Inquiry Questions
What?- should zoos be banned
When?- Now
Why?- putting healthy animals in cages when they are supposed to be in the wild. Also animals being harmed after people making mistakes on falling into the exhibit and killing animals with sticks and rocks.

What can we do?
There are many things we can do to help animals in our world to live a better life. A main help we can do to save our animals is to not going to zoos and paying to see them. We actually convince the zoo to carry zoos by paying money to go visit animals in cages.



Bowmanville zoo
<http://www.citynews.ca/2015/12/22/bowmanville-zoo-owner-refutes-peta-video-showing-him-whipping-tiger/>
Unfortunately Bowmanville

Why do zoo's need to be banned?
Zoos have many reasons for it to be banned. The first reason is animals being in cages for people to see when they should be in the wild. Secondly they kill healthy animals when there are too many when they could have lived a longer life in the wild.

1. Are zoos harmful for animals?
2. How do zoos harm animals?

Making sense: helping the learner to reason



My Dad's An Alien

Does evidence ever lie?



Thinking deeply about evidence

What evidence does the girl gather to support her conclusion?

How does the girl interpret the evidence?

What evidence could you gather to counter her evidence?

What advice could you offer the little girl when she gathers evidence?

ThinQ: Reflection and Sharing

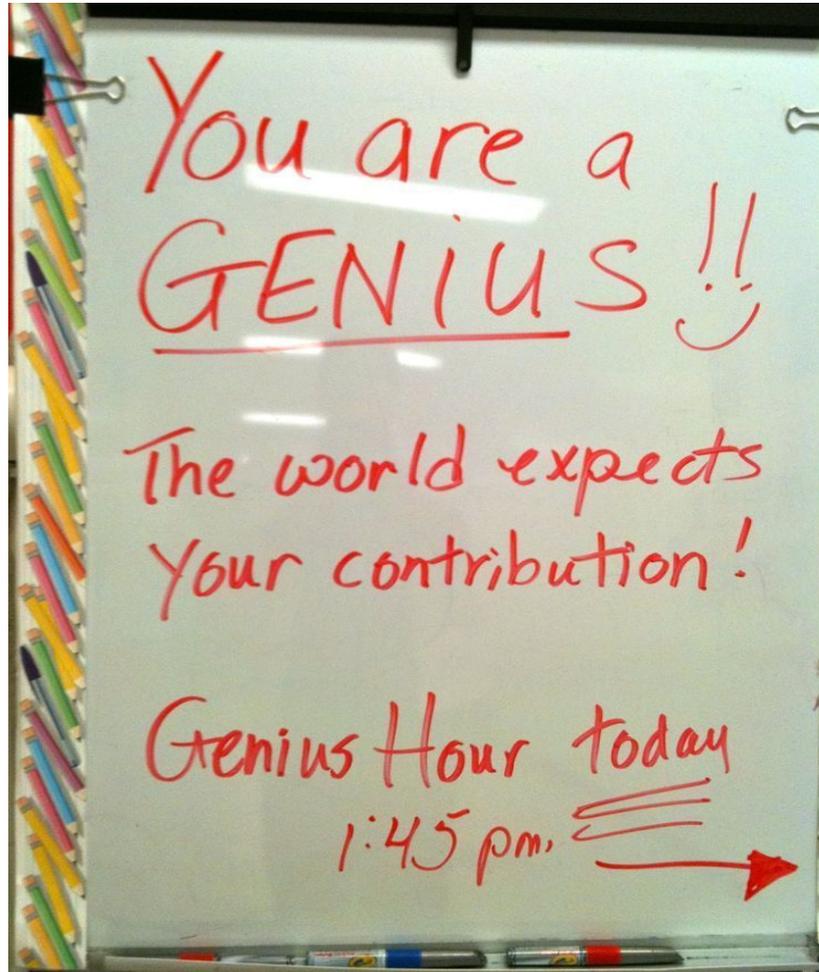
Read 6.2 pp. 89-92

Turn and Talk using some of these prompts.

1. The idea that resonated with me was . . .
2. This reminds me of . . .
3. I used to think . . . now I think . . .
4. A question that remains is . . .

Beyond Guided Inquiry

Genius Hour



Term 1

1

Science: Grade 5
Life Systems
Human Organ Systems

Science: Grade 6
Life Systems
Locomotion

Reading for Meaning
Analyzing Texts (1,7)

Mathematics: Big Idea related to
Number Sense - Grouping (Place Value)

Text Form: Opinion / Persuasive
Letter of request (to persuade)

Writing
Voice (2,3)

Writing
Ideas (1,2 and 1,4)

How do the parts of a larger system work together to benefit humans?

4

Science: Grade 5
Earth & Space Systems
Conservation of Energy and Resources

Science: Grade 6
Earth & Space Systems
Space

Reading for Meaning
Reasoning to and Evaluating Texts (1,8)

Mathematics: Big Idea related to
Measurement - Length & Area

Text Form: Report
Topic: issue to exploring a critical question

Text Form: Electronic
Multimedia Presentation

Writing
Organization (1,5 and 2,1)

Writing
Presentation (3,7)

Do the benefits of space exploration outweigh the negatives related to natural resources and the environment?

5

How safe do you feel?

Health: Grade 5
Personal Safety & Injury Prevention
Apply strategies to deal with threats to personal safety and to prevent injury

Health: Grade 6
Personal Safety & Injury Prevention
Use their prevention and safety and to a, assess risk and to help themselves and others

Reading for Meaning
Making Inferences / Interpreting Texts (1,9)

Mathematics: Big Idea related to
Location and Movement

Text Form: Poetry
Structured / Free Verse

Writing
Voice (2,2)

Writing
Word Choice (2,3)

Music: Grade 6 demonstrate an understanding of the basic elements of music through listening to, performing, and creating music (2,6,1)

2

Health: Grade 5
Healthy Eating
Analyze available information that has an effect on healthy eating practices (e.g., from labels, food product advertisements)

Health: Grade 6
Healthy Eating
Analyze available information and use evidence to evaluate eating practices

Reading for Meaning
Point of View (1,3)

Mathematics: Big Idea related to
Patterns

Text Form: Graphical

Writing
Point of View (2,5)

Writing
Presentation (3,7)

Drama and Dance: Grade 6 Interpret and communicate the meaning of creative actions, songs, lyrics, and other material drawn from a range of sources and cultures using a variety of drama and dance techniques (e.g., "reader's theater"), and evaluate the effectiveness of the techniques (2,6,2)

How does the media try to influence our eating habits?

3

How does our government's involvement in current international issues directly affect our lives?

Social Studies: Grade 5
Canada and World Connections
Aspects of Citizenship and Government in Canada

Social Studies: Grade 6
Canada and World Connections
Canada's Links to the World

Reading for Meaning
Extending Understanding (1,6)

Visual Arts: Grade 6 Identify the elements of design (colour, line, shape, form, space, texture) and the principles of design (balance, harmony, rhythm, unity, variety, proportion), and use them when producing and responding to works of art (2,6,1)

Mathematics: Big Idea related to
Data Representations

Text Form: Explanation
Explain an experience or event (cause and effect)

Writing
Organization (1,5 and 2,1)

Writing
Ideas (1,2 and 1,4)

Term 2

How do the forces acting on and within the structure of a plane allow it to fly?

6

Science: Grade 6
Structures & Mechanisms
Forces Acting on Structures and Mechanisms

Science: Grade 6
Structures & Mechanisms
Properties of Air and Principles of Flight

Reading for Meaning
Extending Understanding (1,4) (Summarizing)

Visual Arts: Grade 6 Explain their interpretation of a variety of art works, supporting it with examples of formal elements and some of the purposes of their art work in the world (2,6,2)

Mathematics: Big Idea related to
3D Shapes and Their Properties

Writing
Conventions (3,9)

Writing
Sentence Fluency (2,4)

Text Form

Term 3

7

Health: Grade 5
Resilience
Use & abuse identify influences affecting emotional well-being and the self-worth, reputation or self-identity (2,6,1)

Health: Grade 6
Resilience
Use & abuse identify influences affecting emotional well-being and the self-worth, reputation or self-identity (2,6,1)

Mathematics: Big Idea related to
Probability

Text Form: Script
Original play / reader's theatre

Writing
Conventions (3,9)

Drama and Dance: Grade 6 Interpret and communicate the meaning of creative actions, songs, lyrics, and other material drawn from a range of sources and cultures using a variety of drama and dance techniques (e.g., "reader's theater"), and evaluate the effectiveness of the techniques (2,6,2)

Why do others try to influence our decisions?

8

Mathematics: Big Idea related to
Probability

Social Studies: Grade 5
Heritage and Citizenship
Early Colonization

Social Studies: Grade 6
Heritage and Citizenship
First Nation Peoples and European Explorers

Writing
Ideas (2,1 and 1,4)

Music: Grade 6 demonstrate an understanding of the basic elements of music through listening to, performing, and creating music (2,6,1)

What is my relationship with nature? [How is that similar to and different from those in early civ. (first Nations) Eur. Explorers.]

9

How does transforming matter and energy affect human health and the health of our planet?

Science: Grade 5
Matter and Energy
Properties of Matter and Changes in Matter

Science: Grade 6
Matter and Energy
Energy and Mechanical Devices

Text Form: Procedure
Writing a procedure

Writing
Organization (1,5 and 2,1)

Writing
Word Choice (2,3)

Mathematics: Big Idea related to
Measurement - Area

10

How can changes in our bodies influence our behaviour?

* Make connections to the planet from being related to each level of the food chain and from particularly significant in the way that changes in our bodies influence our behaviour?

Text Form: Recount
Narrative events

Writing
Word Choice (2,3)

Writing
Point of View (2,5)

Text Form: Electronic
Multimedia Presentation

Term 1

How can the healthy and unhealthy choices you make affect your growth and development?

Health: Grade 3
Growth & Development
Describe the growth and development of humans from birth to old age.

Text Form: Graphical
Pie Chart

Text Form: Graphical
Comic

Science: Grade 3
Life Systems
Growth and Changes in Plants

Text Form: Opinion / Persuasive
Letter of invitation to a party

Why do you think it is important for humans to protect plants, animals and the places they live?

Health: Grade 3
Personal Safety & Injury Prevention
List safety procedures and practices in the home, school, and community.

Mathematics: Grade 3
Area Management and Probability
Use area and probability concepts to solve problems.

Mathematics: Grade 3
Area Management and Probability
Use area and probability concepts to solve problems.

Why do you think people live where they do?

Text Form: Graphical
Map

Text Form: Narrative
Folklore or legend

Social Studies: Grade 3
Heritage and Citizenship
Identify and describe the contributions of various groups of people to the development of the country.

Social Studies: Grade 3
Heritage and Citizenship
Identify and describe the contributions of various groups of people to the development of the country.

GRADE 2/3

Term 2

Science: Grade 3
Matter and Energy
Force, Cause and Movement

Science: Grade 2
Structures & Mechanisms
Movement

Text Form: Explanation
Explain an experience or event (simple cause and effect)

How do the forces in our lives help or hinder the things we want to do?

Health: Grade 3
Personal Safety & Injury Prevention
List safety procedures and practices in the home, school, and community.

Health: Grade 2
Personal Safety & Injury Prevention
List safety procedures and practices in the home, school, and community.

Text Form: Narrative
Adventure Story

Why do you think saying 'no' can be a difficult thing sometimes?

How do you think environmental conditions impact the strength and stability of a structure?

Science: Grade 2
Matter and Energy
Properties of Liquids and Solids

Science: Grade 3
Structures & Mechanisms
Strong and Stable Structures

Text Form: Procedure
Simple recipe or craft project

Text Form: Poetry
Humorous / Light Verse

Term 3

How do you think histories and traditions shape a community?

Social Studies: Grade 3
Heritage and Citizenship
Identify and describe the contributions of various groups of people to the development of the country.

Text Form: Recount
Daily Journal

Health: Grade 3
Healthy Eating Habits for Sustained Growth and Development
List healthy eating habits for sustained growth and development.

Text Form: Functional
Form

How does what we eat affect our day?

How do our actions impact the quality of air, water and soil and the Earth's ability to sustain life?

Science: Grade 3
Earth & Space Systems
Soils in the Environment

Science: Grade 3
Earth & Space Systems
Soils in the Environment

Text Form: Report
Informational

How do we know if a drug is going to be helpful or harmful?

Health: Grade 3
Personal Safety & Injury Prevention
List safety procedures and practices in the home, school, and community.

Text Form: Graphical
Table

Final Thoughts

What are my next moves in inquiry-learning?

What professional learning do I need to deepen my practice and refine my skills?

How might I measure impact?
