A. Exploring

1. Preparing for the Inquiry:
From the curriculum, what big ideas, essential questions will provide the frame for the concepts and skills you want students to understand? E.g., Social Studies: People and Environments

**Big Ideas:**
- Community: a group of living and nonliving things sharing a common purpose or space
- Long-term effects: How we live today impacts how people will live in the future.

**Essential Questions:**
- Is Toronto a sustainable city?
- Is it possible to create sustainable communities?

2. Planning Provocations:
How can students share their current understanding?
What learning opportunities can you plan to spark curiosity?
How might we build students background knowledge or develop a common and shared understanding?
- E.g., Provocation – What do I know about my place? Treasures and troubles neighbourhood walk

3. Observing and collecting data
What tools or strategies could be used to strengthen students observations?
How might students explore the issue from a variety of perspectives?
How might students unpack or tease out facets of the question or issue?
- E.g., different lenses, put your _______ glasses on, transects, sampling

4. Wondering and Questioning:
How might students create, refine and ask further questions?
- E.g., brainstorming, exploring cause and effect, sorting
5. Planning investigations:

- How might student questions be answered?
- What learning opportunities can you plan to deepen understanding of concepts?

Repeat with new provocations and learning opportunities as needed after initial investigations to spark new questions and to uncover another issue or question.

Primary and Secondary Research

Descriptive Questions

Descriptive field investigations involve describing parts of a system. Descriptive questions focus on measurable or observable variables that can be represented spatially in maps or as written descriptions, estimations, averages, medians, or ranges.

- How many _____ are there in a given area?
- How frequently does _____ happen in a given period?
- What is the [temperature, speed, height, mass] of _____?
- When does _____ happen during the year?
- Where does _____ go/travel over time?

Design Process

The Design process is used to solve a variety of problems with a different process or product. Also helpful to test initial theories through the creation of prototypes.

- What ideas could you add to ... and how would these ideas change it?
- What might happen if you combined ... and ...?
- What solutions could you suggest the problem of .....? Which might be most effective and why?
- When might ... be most useful and why?
- How could you create or design a new...? Explain your thinking.
- What would happen if? How else would you ...?
Experiments

Comparative Questions

In comparative field investigations data is collected on different groups to make a comparison. Comparative questions focus on one measured variable in at least two different (manipulated variable) locations, times, organisms, or populations.

- Is there a difference in ______ between group (or condition) A and group B?
- Is there a difference in ______ between (or among) different locations?
- Is there a difference in ______ at different times?

Correlative Questions

Correlative field investigations involve measuring or observing two variables and searching for a pattern. Correlative questions focus on two variables to be measured and tested for a relationship.

- What is the relationship between variable #1 and variable #2?
- Does _____ go up when _____ goes down?
- How does _____ change as _____ changes?

C. Processing and Creating

Planning a course of action:

- How might students use what they have learned to benefit or contribute to their lives or the lives of others
- What type of action, if any, can students take to make a difference with their new learning?
- What assistance might students need to determine all of the stakeholders and logistics to execute an effective action.
How well do you know your place?

1. Define the limits of your bioregion. Be able to justify the boundaries you choose.
   
   Bioregion: An area constituting a natural ecological community with characteristic flora, fauna, and environmental conditions and bounded by natural rather than artificial borders.

2. How many days until the moon is full (plus or minus a couple of days)? Were the starts out last night?

3. From where you are reading this, point north.

4. Describe the soil around your home.

5. What primary geological events or processes influenced the land forms where you live?

6. What is the land use history by humans in your bioregion during the past century?

7. How many people live next door to you? What are their names?

8. What are the name of the elected municipal, provincial and federal representatives for your area?

9. How long is the growing season where you live?

10. Name five trees in your area. Which of them are native?

11. Name five resident and any migratory birds in your area.

12. Name five native edible plants in your bioregion and their season(s) of availability?

13. What spring wildflower is consistently among the first to bloom where you live?

14. Name some other beings (non-human) which share your bioregion.

15. Which type of marine animal is captured the most for human consumption?

16. How much gasoline and other fossil fuels do you use a week on average?

17. What kind of energy cost you the most money? What kind of energy is it? What portion of your use of energy does it account for?

18. Where does your garbage go?

19. Trace the water you drink from precipitation to tap and from tap to ultimate disposal.

20. How much do you pay for clean water / sewage a month?

21. Give five aspects of your life that are independent of your bioregion. Where are they supported by the earth elsewhere?