



# Assessment in Science

August 2025  
Summer Symposium

Facilitated by  
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Designers of Professional Learning

[CLICK HERE for Today's Slides](#)





We are gathered here today from across Alberta and recording within Treaty 7 and the traditional Blackfoot territory which is home to the Siksika, Piikani, and Kainai Nations; the Iethka Stoney Nakoda Nation which includes the Chiniki, Bearspaw, and Good Stoney First Nations. This incredible area is also home to the Tsuut'ina Nation and the Otipemisiwak Métis Government of the Métis Nation within Alberta District 6.



# Agenda

What do our students know? How can we elicit thinking in our science classrooms that leads to understanding? We will explore ways to design learning tasks that reveal students' conceptual understanding, problem-solving, and uncover prior knowledge. We will unpack strategies to help you gather evidence of student thinking, reasoning and reflection.

**Part 1: Begin with Learning Outcomes**

**Part 2: Scientific Methods in Science**

**Part 3: Engaging our Assessment Practices to employ the Triangulation of Evidence**



QR Code to Today's Slides!



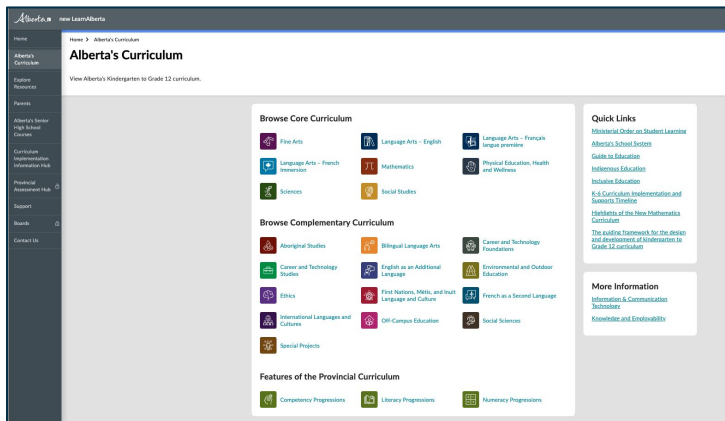
Watch for tools to take-away!

**Beginning with the End in Mind**  
(Achievement of the Learning Outcomes)

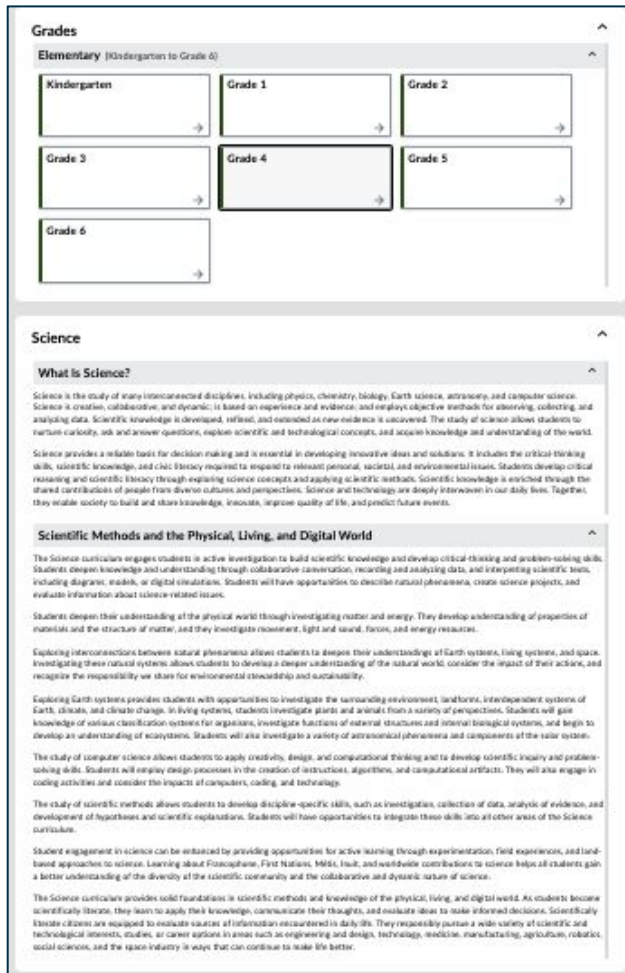


# Let's Check out the Changes to the Website

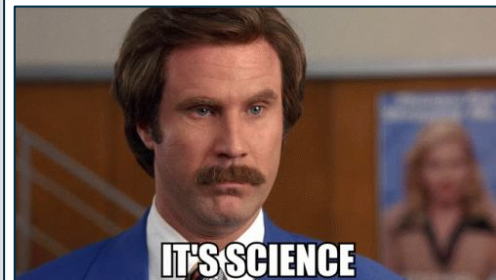
[New.LearnAlberta.ca](https://www.learnalberta.ca)



All K-12 Curriculum has been moved to the site.



Supporting every educator  
in every classroom





## Organizing Idea

Living Systems: Understandings of the living world, Earth, and space are deepened by investigating natural systems and their interactions.

## Guiding Question

How do plants and animals interact?

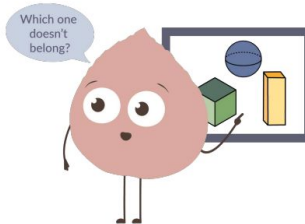
## Learning Outcome

Students **analyze and describe** how plants and animals interact with each other and within environments.

### ANALYZE

K - 3

To consider in detail in order to find meaning and determine relationships, patterns, similarities, differences, etc.

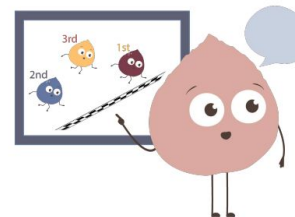


**Analyzing** requires students to find meaning within information given through text, numerical data, images and other auditory or visual stimuli. It involves pulling ideas and objects apart, looking closely at the elements or features and then reorganizing the ideas by similarities and differences, patterns and relationships. Additionally, **analyzing** trends over time provides students with opportunities to find patterns and relationships that can be used to draw conclusions.

### DESCRIBE

K - 3

To communicate (orally or in writing) qualities, attributes, details and/or (orally or in writing) qualities, attributes, details and/or features of something.



**Describing** indicates that students are engaged in a process. They determine relevant details, facts, attributes, ideas, etc. and then share the information in a way that is understandable to the 'audience' (e.g. a classmate.) Depending on the context or complexity of what is being described, students may need to order this information or put it in sequence.

# The What | Clarifying Expected Student Vocabulary



[Improving Primary Science Report](#)

[EAL & Science](#)

[Science VERBS - Skills Glossary](#)

## Gr. 3 Living Systems Verbs

- represent
- classify
- investigate
- discuss
- respond
- reflect
- explain
- connect

## Gr. 3 Sci Methods Verbs

- Analyze
- Collect
- Collaborate
- Compare
- Develop
- Discuss
- Draw conclusions
- Question

**Tier 1 – words that are encountered day to day.**

environment, chain, order, shows, increase, depend, various, interactions

**Polysemous – words that have an everyday meaning and a scientific meaning.**

Analyze, describe, interact, chain, order, depend, represent, classify, light, season, pattern, sense, balance, track, protect, stimuli

**Tier 2 – words that are important across many science topics.**

Observations, classify, environment, respond, survive, migration, population, relation

**Tier 3 – words that are specific to a science topic.**

Food chain, carnivore, herbivore, omnivore, predator, prey, habitat, interdependence, ecosystem (implied in KUSP), behavior



# What do students need to know, understand and do?



- Students analyze and describe how plants and animals interact with each other and within environments.
- Students will be able to demonstrate how plants and animals interact with each other in various environments in ways that can be represented with food chains.
- Students will be able to classify animals in a food chain as carnivores, herbivores, or omnivores.
- Student will be able to describe how Plants and animals use their senses to respond to sensory stimuli, including water, food, temperature, and light.
- Students will investigate and discuss how plants and animals respond to stimuli in their environments in order to survive.
- Students will be able to demonstrate respectful and safe practices during observations of plants and animals in local environments.
- Students will be able to explain interconnections in environments, including how plants depend on animals and how animals depend on plants to survive.
- Students will be able to discuss First Nations, Métis, and Inuit connections with environments and their knowledge of and relationships with plants and animals.

# Scientific Methods as Instructional Practices



# Scientific Methods

## Experimental



## Comparative



## Descriptive/ Observation



## Oral Stories and Traditional Teachings



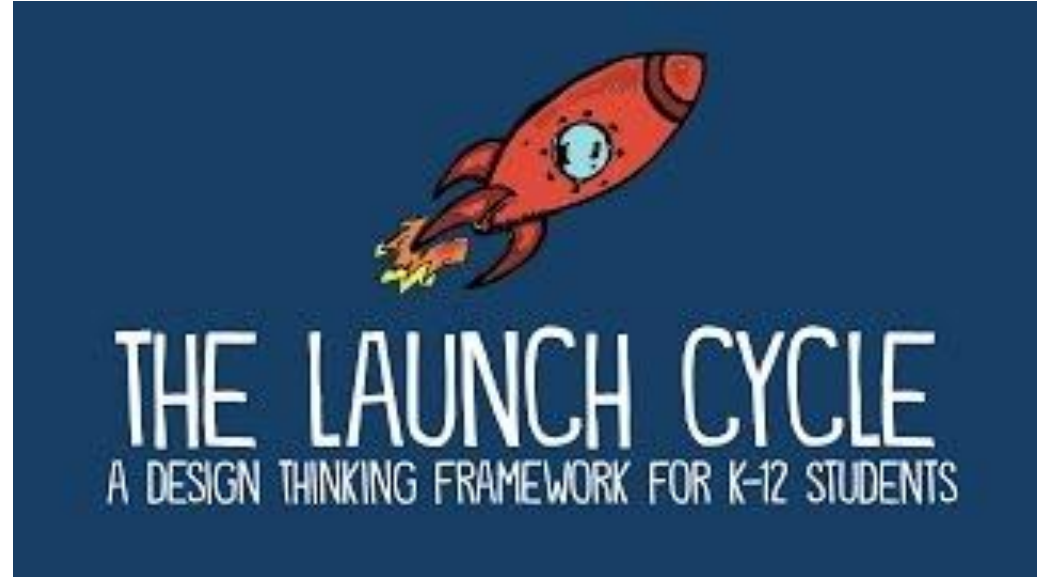
## Research



## Relationships with the Land



# Computer Science



[Let's Talk Science, 2022](#)

# Analyzing and Describing plant-animal interactions

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## Task:

Students create a **field journal** (digital or paper) where they document at least three examples of interactions between plants and animals observed in the schoolyard or local environment. They should include drawings/photographs, labels, and explanations of the interaction (e.g., pollination, shelter, food source).

## Assessment Lens:

- **Observation:** Watch how students attend to detail during the field walk, what they notice first, and how carefully they record.
- **Conversation:** Ask probing questions (“What makes you think this animal depends on that plant?”) to check depth of understanding.
- **Product/Portfolio:** Field journal entries assessed for accuracy, completeness, and use of scientific vocabulary.

# Refining using ChatGPT

Asked for  
grade  
appropriate  
language

Let's create a more robust task design for our grade three student using grade appropriate language and skill level. Title: Analyzing and describing plant-animal interactions. Task: Students create a field journal (digital or paper) where they document at least three examples of interactions between plants and animals observed in the schoolyard or local environment. They should include drawings/photographs, labels, and explanations of the interaction (e.g., pollination, shelter, food source).

Assessment Lens:

Observation: Watch how students attend to detail during the field walk, what they notice first, and how carefully they record. Add a peer element to noticing how others investigate.

Conversation: Ask probing questions ("What makes you think this animal depends on that plant?") to check depth of understanding. Add a peer element to conversations by having them share what they have noticed.

Product/Portfolio: Field journal entries assessed for accuracy, completeness, and use of scientific vocabulary. How can they self-reflect, and what feedback could they receive from their peers?

Prompted for a field  
journal.

Added peer conversations, peer  
feedback and self-reflection into  
the prompt.



## Task Design: Analyzing and Describing Plant-Animal Interactions

### Task

You will be a **nature detective**! Take your field journal (paper or digital) outside to the schoolyard or a nearby natural space.

- **Look closely** for at least **three examples** of plants and animals interacting.
- **Draw or take photos** of what you see.
- **Label** your drawing/photo (name of the plant/animal).
- **Explain** what is happening (for example: “The bee is taking nectar from the flower – this helps the flower make seeds.”).
- Try to notice different kinds of interactions, such as **pollination, food, or shelter**.

**Engaging our Assessment  
Practices to employ the  
Triangulation of Evidence**



# My Dad is an Alien!



### Observation

- Teacher watches how carefully you look for details, how gently you treat plants and animals, and how you record in your journal.
- **Peer check:** Notice how your partner looks for clues in nature. What did they notice that you didn't? Share one thing you saw them do well.





## Conversation

- **Teacher asks:** *“What makes you think this animal depends on that plant?”* or *“How could this interaction help both the plant and the animal?”*
- **Peer share:** In pairs, take turns explaining one drawing in your journal. Your partner can ask you a question or tell you something they learned from your observation.





## Product/Portfolio

- Your **field journal** will be looked at for:
  - Clear drawings/labels
  - Accurate and complete explanations
  - Use of science vocabulary like "nectar," "shelter," "herbivore," etc.
- **Self-reflection:** Circle one drawing in your journal and write: "This is my best work because..."
- **Peer feedback:** Swap journals with a partner. Each person writes one star ★ (something they did well) and one wish 🌱 (something they could add or explain more).



1. [Science Skills and Procedures](#) Progressions K-3
2. [Making Predictions](#)
3. [Investigation Organizer](#)
4. [Observation Checklist](#) - template/sample
5. [Draw, Write or Show me what you know](#) - template

## ELEMENTS OF A NATURE JOURNAL

### Pictures

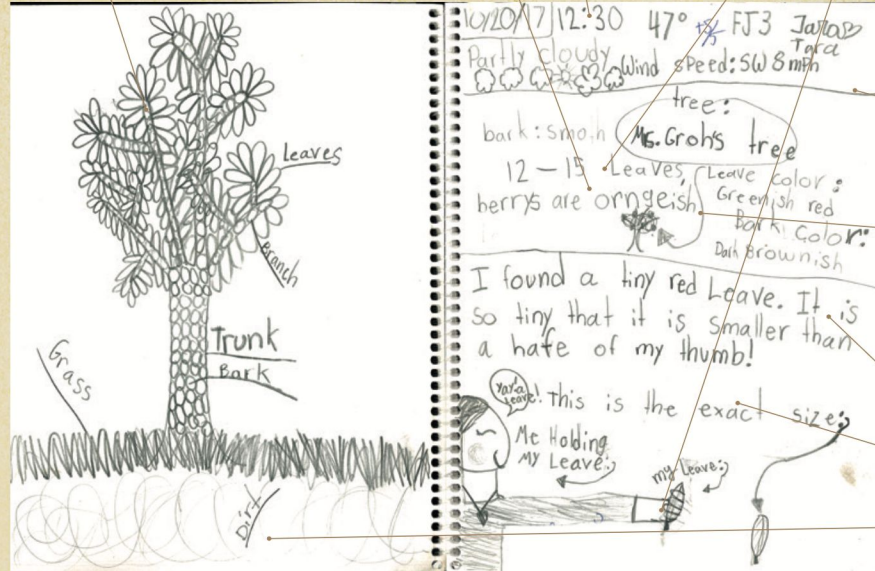
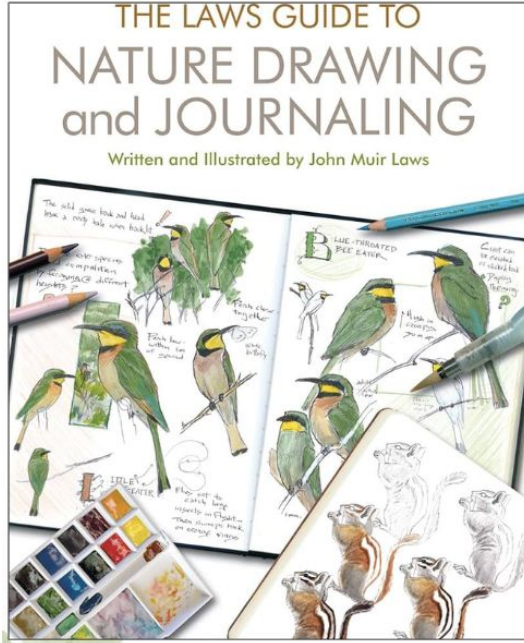
- Icons to show weather
- Drawings at different scales

### Observations, Ideas, and Thinking

- Comprehensive metadata
- Notes about colors

### Numbers

- Objects are counted
- Scale is shown with relative size



### Structure and Layout

- Lines separate the page into sections
- Arrows connect words and text

### Words

Observations are recorded in

- Full paragraphs
- Short sentences or fragments
- Labels

Free Download:

<https://johnmuirlaws.com/product/how-to-teach-nature-journaling/>

# Claim + Evidence + Reasoning (CER) = Explanation

## CER Graphic Organizer

Using a non-scientific example is a great way to engage students and explain the process in a relatable way. This sample uses the Audi commercial "[My Dad is a Space Alien.](#)" Answers may vary!

**Question:**

Who is my dad?

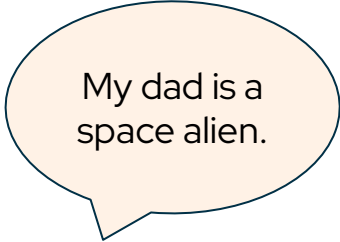
**Claim:**

My dad is a space alien.

**Evidence #1**

**Evidence #2**

**Evidence #1**



My dad is a  
space alien.



# Claim + Evidence + Reasoning (CER) = Explanation

## CER Graphic Organizer

Using a non-scientific example is a great way to engage students and explain the process in a relatable way. This sample uses the Audi commercial "My Dad is a Space Alien." Answers may vary!

### Question:

Who is my dad?

### Claim:

My dad is a space alien.

### Evidence #1

He speaks a weird language.



Reasoning #1

### Evidence #2

He dresses weird.



Reasoning 2

### Evidence #1

He drinks green liquids.



Reasoning #3



# Claim + Evidence + Reasoning (CER) = Explanation

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## CER Graphic Organizer

Using a non-scientific example is a great way to engage students and explain the process in a relatable way. This sample uses the Audi commercial "My Dad is a Space Alien." Answers may vary!

**Question:**  
Who is my dad?

**Claim:**  
My dad is a space alien.

|   |   |  |
|---|---|--|
| <b>Evidence #1</b><br>He speaks a weird language. | <b>Evidence #2</b><br>He dresses weird. | <b>Evidence #1</b><br>He drinks green liquids. |
|---|---|--|

|  |   |  |
|--|---|--|
| <b>Reasoning #1</b><br>This is important because aliens are not from Earth so they do not speak English. | <b>Reasoning 2</b><br>The evidence suggests that aliens wear space suits since they are from outer space and need protection to travel. | <b>Reasoning #3</b><br>Some pictures show aliens with green skin. This could be from drinking green liquids. |
|--|---|--|

## CER Graphic Organizer

**Question:**

**Claim:**

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| <b>Evidence #1</b> | <b>Evidence #2</b> | <b>Evidence #3</b> |
|--------------------|--------------------|--------------------|

|                     |                     |                     |
|---------------------|---------------------|---------------------|
| <b>Reasoning #1</b> | <b>Reasoning #2</b> | <b>Reasoning #3</b> |
|---------------------|---------------------|---------------------|

## Triangulated Evidence

Ready to evaluate? Plan ahead to ensure you gather triangulated evidence that helps to certify a student's level of proficiency.

### *Evidence that was observed may include:*

- Drawing or building **connected food chains** not listing animals separately.
- Using **arrows correctly** to show flow of energy in a food chain.
- **Acting out** predator-prey interactions or plant-animal relationships in role play.
- **Adjusting ideas** when classmates add new information (e.g., recognizing animals belong in multiple food chains).
- Handling plants, soil, or observing animals **respectfully and carefully** outdoors.
- Talking about **protection actions** (e.g., "we should be quiet when we walk so we don't scare the birds").
- Showing **curiosity about Indigenous knowledge** or repeating connections they've learned from stories, Elders, or class readings.

### Conversational evidence may sound like:

- "The rabbit eats grass, and then the fox eats the rabbit. That's part of a food chain."
- "An eagle is a carnivore because it only eats meat."
- "We are omnivores because we eat both vegetables and chicken."
- "The plant bends toward the light – that's how it survives."
- "The deer uses its nose to smell if there's danger nearby."
- "If we pick too many flowers, the bees won't have enough food."
- "We should walk carefully so we don't step on the plants."
- "First Nations people watched animals to know when the seasons were changing."
- "If one animal disappears, the whole food chain changes."

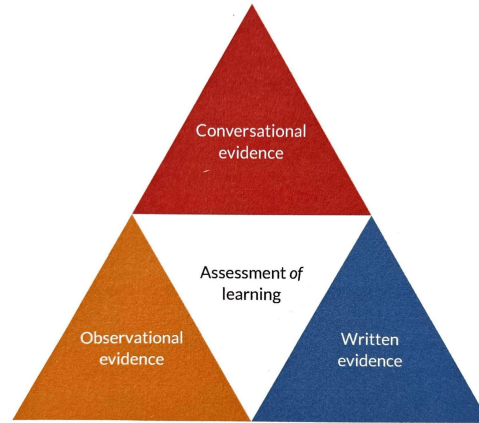


Image source: Damian Cooper (2022)  
Rebooting Assessment, pg 38

### Written or product evidence may include:

- A **story, comic, or skit** demonstrating how a plant or animal survives by depending on others.
- A **"senses journal"** documenting how plants and animals respond to light, temperature, water, or food.
- A **poster or infographic** showing respectful ways humans can protect plants and animals locally.
- A **reflection piece** (short paragraph, poem, or drawing with captions) on how humans and First Nations, Métis, and Inuit communities respect animals and plants in environments.
- A **class mural** of an ecosystem with student-drawn plants and animals, arrows showing interactions, and protective actions added.



1. [Building Readiness Stairs - Science example and Editable Template](#)
2. [My Learning Story Sample - Early Elementary](#)
3. [Reflecting on Competencies](#) (source Solution Tree - sign up free login)
4. [Connecting long term goals to short term targets](#) - or login to [Solution Tree for Student Self-Assessment reproducibles](#)
5. [Reflecting on success criteria](#)
6. [Rethinking Thinking Video](#)



**The Consortium**

Alberta Professional Learning Consortium

## APLC Post Session Survey

Thank you for attending this session. To help us enhance the delivery of future sessions, we ask that you please complete this short survey.

**Your feedback is important and appreciated!**

*Note: Your survey will be submitted anonymously.*

Survey:

<https://aplc.ca/survey/?id=15077>



# Thank you

Please visit our website for more information or connect with us directly.

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