The Consortium
Alberta Professional Learning Consortium

Welcome to the Science Curriculum

August 18, 2025

Facilitated by
Jess Orcheski & Cheryl Babin,
APLC 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

Supporting every educator
in every classroom

Part 1: LOVING the Learning!
Organizing Ideas and LOs & Planning Strategies

Part 2: Take it Outside!

Part 3: High Quality Resources
Grades K - 6
A Resource page for each

QR Code to Today's Slides!

Photo by Adonyi Gábor on Unsplash

The Consortium
Alberta Professional Learning Consortium

Part 1:

Loving the Learning!
Organizing Ideas and Learning Outcomes

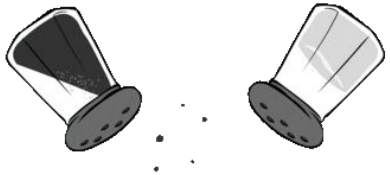
Planning Strategies

WHAT? WHEN?

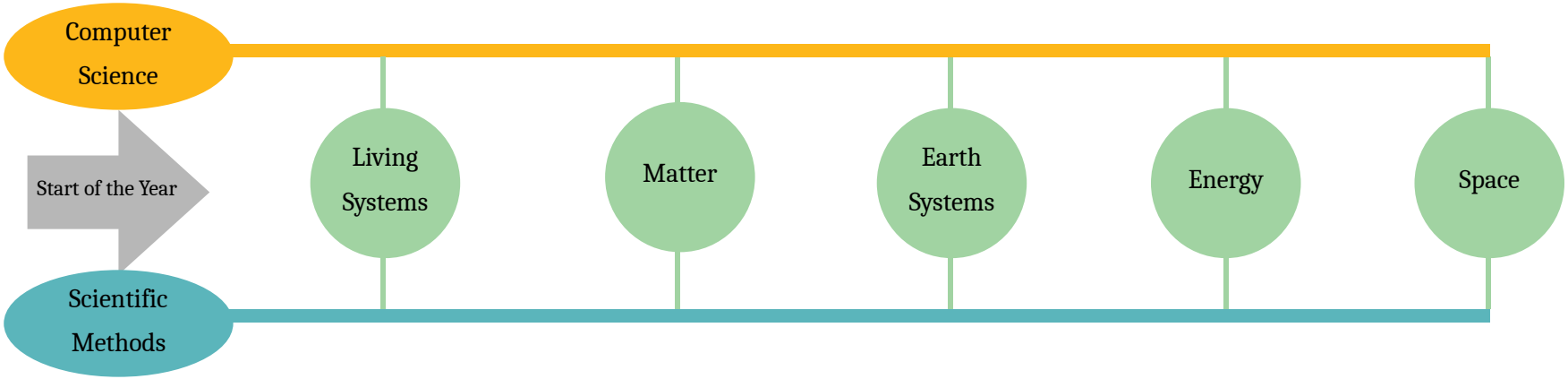
Supporting every educator
in every classroom

Organizing Idea	K	1	2	3	4	5	6
Matter							
Energy							
Earth Systems							
Living Systems							
Space							
Computer Science							
Scientific Methods							

Scope and Sequence



Check this Link out for SAMPLES!



Matter: Understandings of the physical world are deepened by investigating matter and energy.

Energy: Understandings of the physical world are deepened by investigating matter and energy.

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

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

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

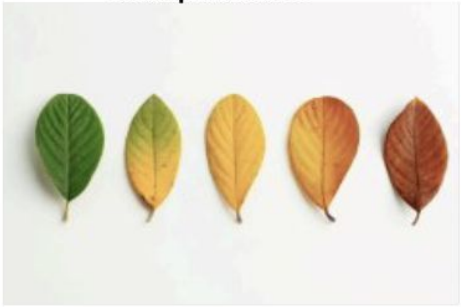
Computer Science: Problem solving and scientific inquiry are developed through the knowledgeable application of creativity, design, and computational thinking.

Scientific Methods: Investigation of the physical world is enhanced through the use of scientific methods that attempt to remove human biases and increase objectivity.

Scientific Methods

Experimental

Comparative



Descriptive/ Observation

Oral Stories and Traditional Teachings

Research

Relationships with the Land

Scientific Methods | Grade 4 Sample

Draw conclusions using reliable and valid evidence from Investigations.

Represent evidence from investigations in a variety of ways.

Interpret data collected from investigations.

Interpret data and evidence expressed in SI units.

Collaborate to evaluate the reliability and validity of a collection of data.

Decide whether to collect descriptive or measured data during investigation.

Discuss tools or technology used to improve accuracy during investigations.

Collect reliable data during investigations.

Collect valid data by accurately using tools or technology during investigations.

APLC Investigation Cycle

Scientific Methods | Grade 4 Sample

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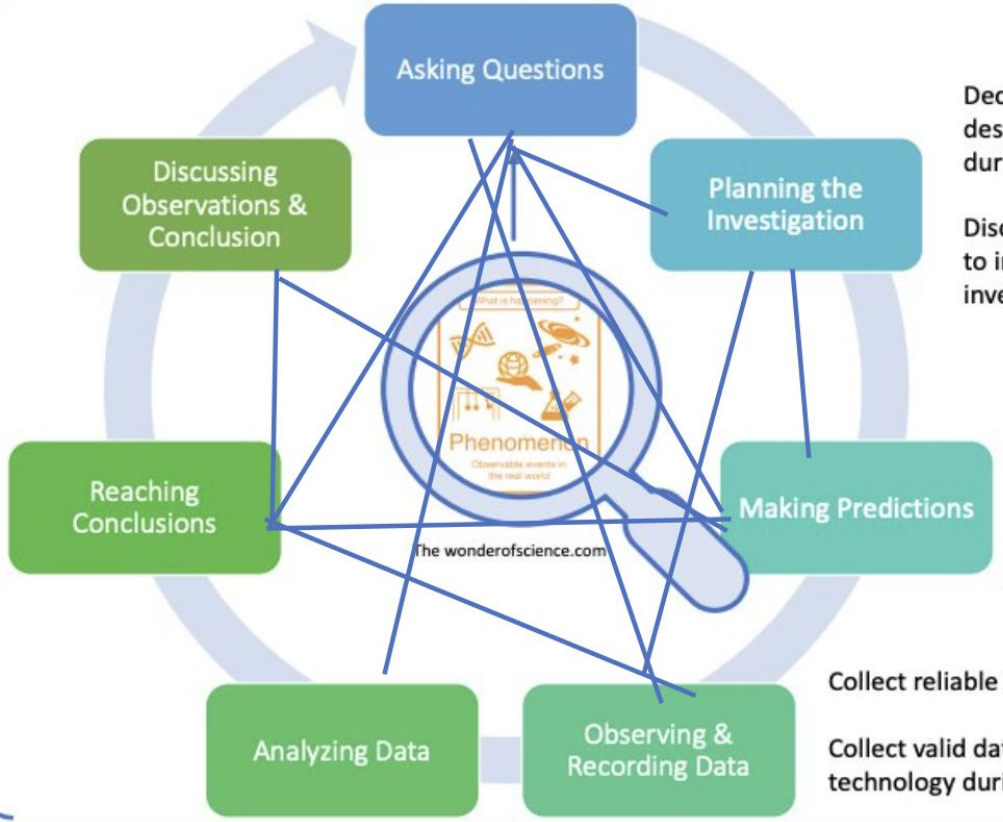

Decide whether to collect descriptive or measured data during investigation.

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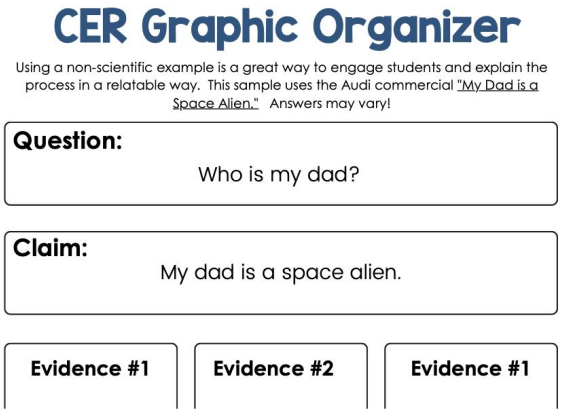
Collect valid data by accurately using tools or technology during investigations.

APLC Investigation Cycle

My Dad is an Alien!

Claim + Evidence + Reasoning (CER) = Explanation

Supporting every educator in every classroom



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?

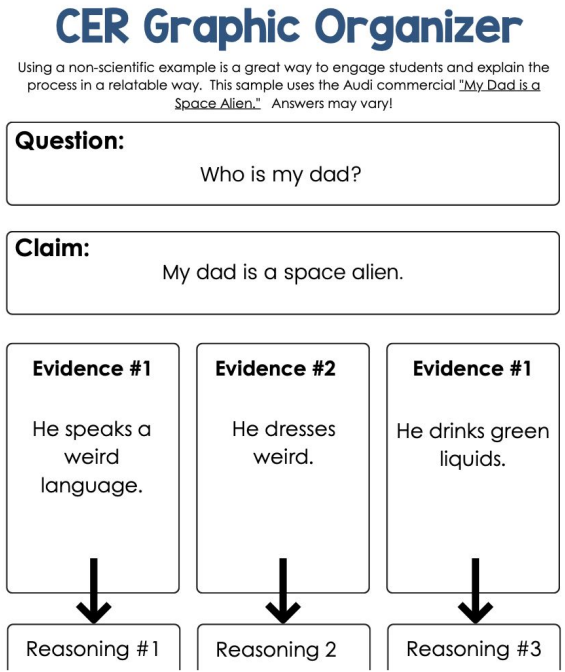
Claim:

My dad is a space alien.

Evidence #1	Evidence #2	Evidence #1

Claim + Evidence + Reasoning (CER) = Explanation

Supporting every educator in every classroom



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
He speaks a weird language.	He dresses weird.	He drinks green liquids.
↓	↓	↓
Reasoning #1	Reasoning 2	Reasoning #3

Claim + Evidence + Reasoning (CER) = Explanation

Supporting every educator in every classroom

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
He speaks a weird language.	He dresses weird.	He drinks green liquids.
Reasoning #1	**Reasoning 2**	**Reasoning #3**
This is important because aliens are not from Earth so they do not speak English.	The evidence suggests that aliens wear space suits since they are from outer space and need protection to travel.	Some pictures show aliens with green skin. This could be from drinking green liquids.

Beakers & Ink

CER Graphic Organizer

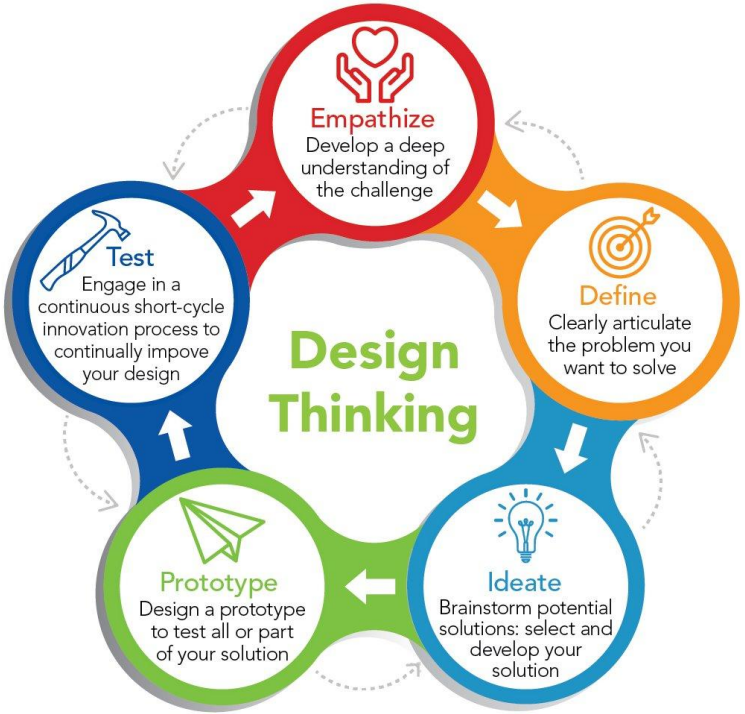
Question:

Claim:

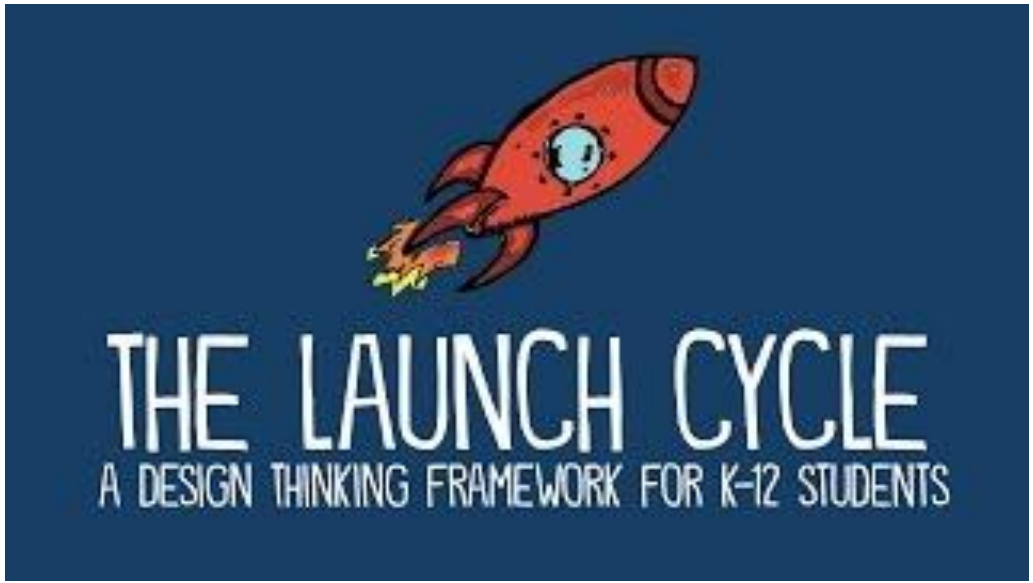
Evidence #1	Evidence #2	Evidence #3
Reasoning #1	**Reasoning #2**	**Reasoning #3**

Edutopia - Designing Science Inquiry: CER

Computer Science

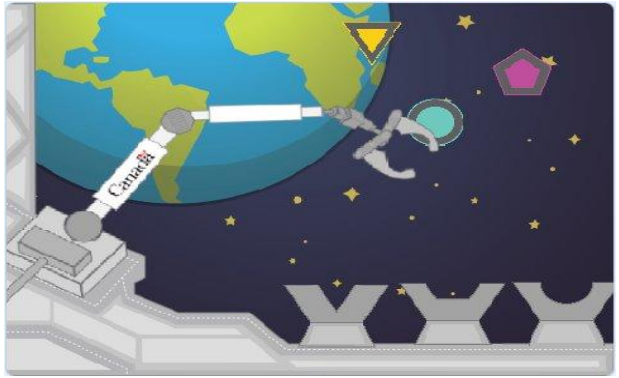


Let's Talk Science, 2022

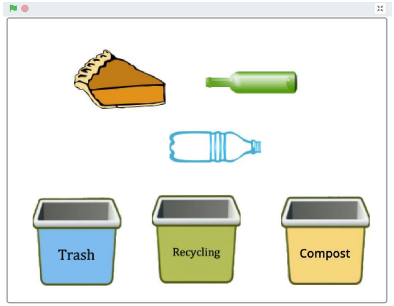


Learning Opportunity: Weaving in Computer Science

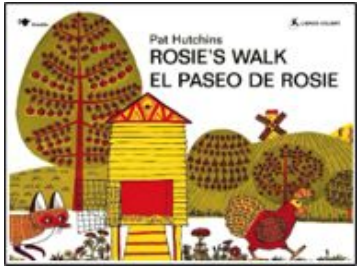
How might this look in my practice?



Canadarm Scratch Coding Challenge (Canada Learning Code)



Tutorial: How to Make a Recycling Game in Scratch



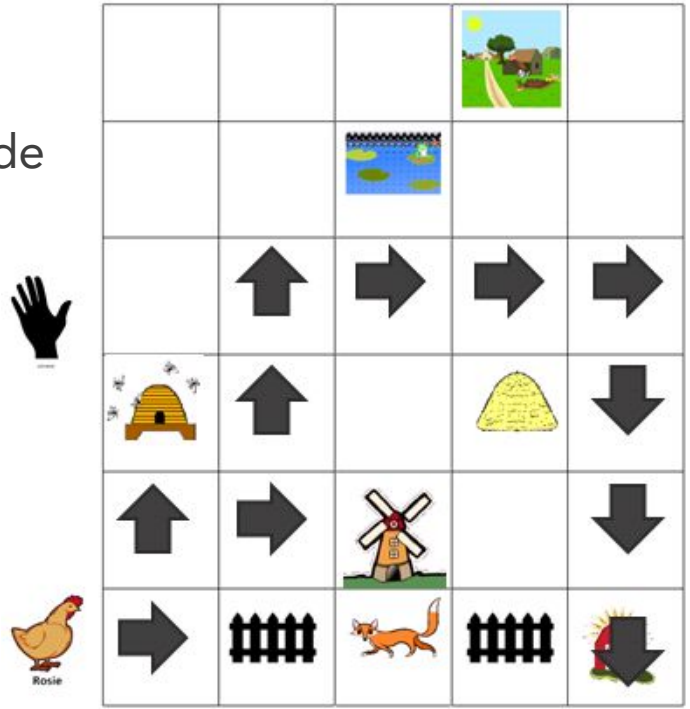
Rosie's Walk

Criteria: Get Rosie to the barn for lunch, avoiding at least 3 obstacles along the way.

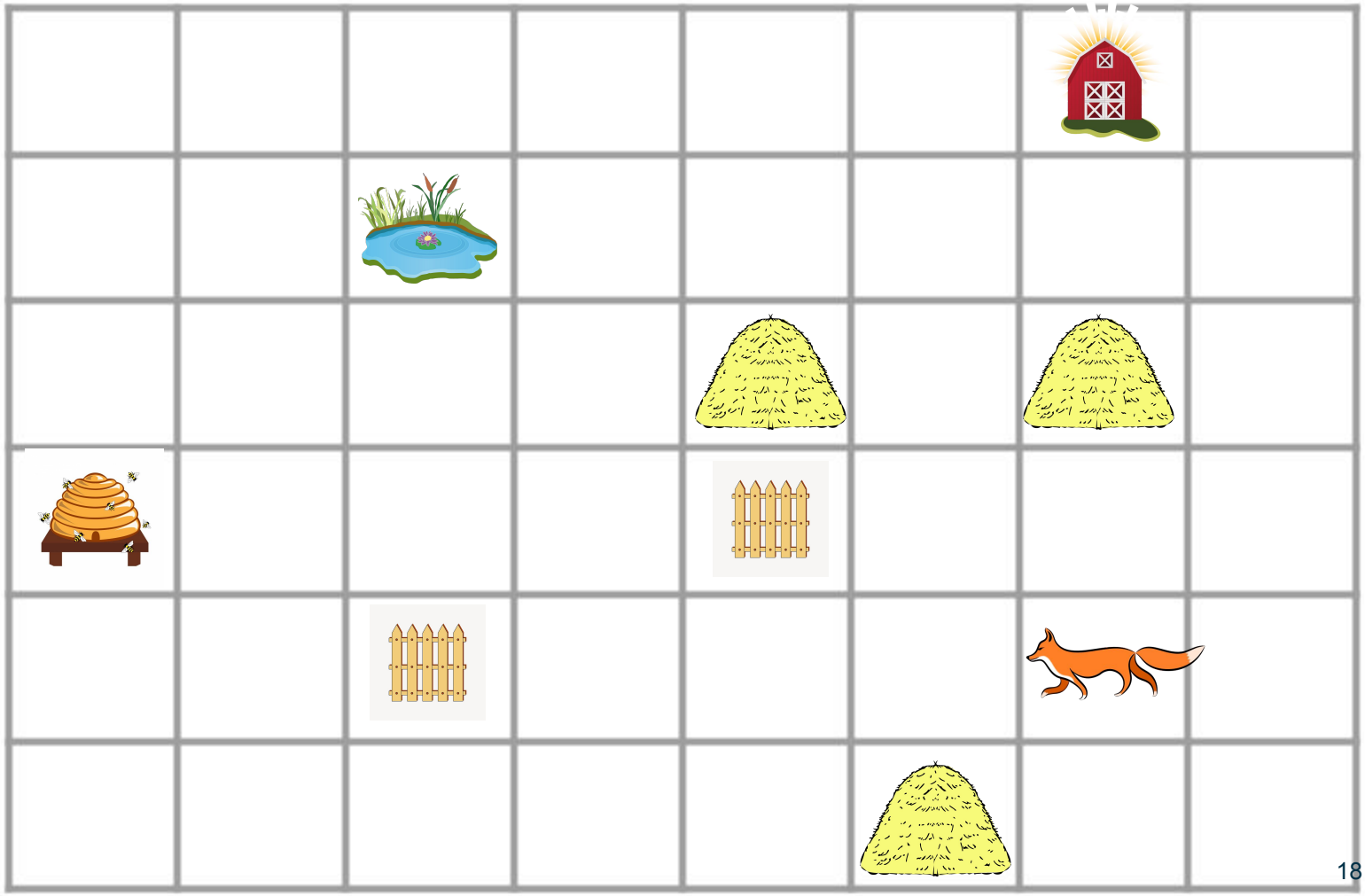
Place Rosie in the bottom left hand corner outside of the grid and place obstacles anywhere on the grid.

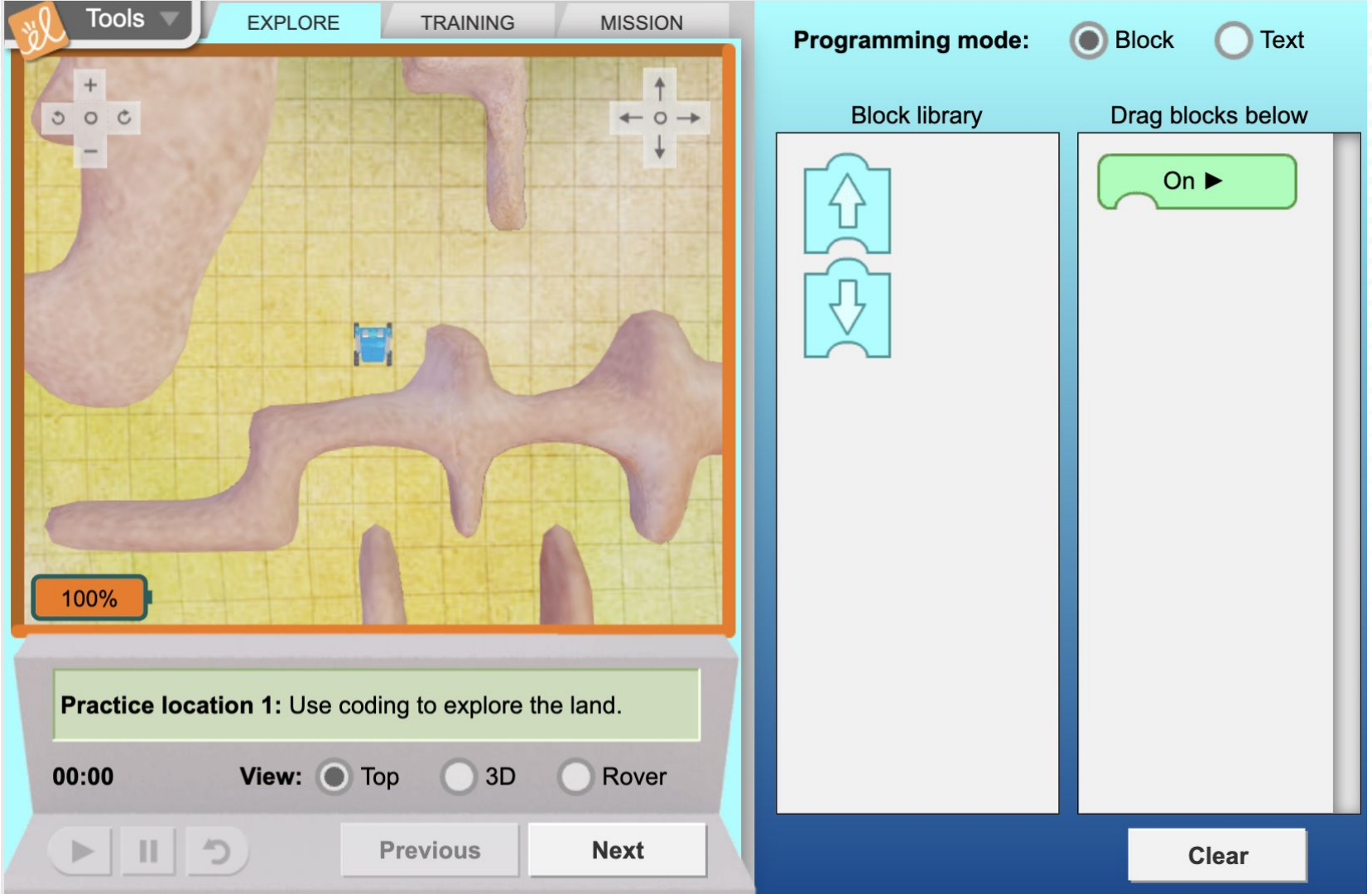
Place the directional arrows on the grid to indicate when Rosie has to go right, left, up or down.

NOTE: The direction Rosie is facing as she navigates the grid is unimportant at this stage (she can take side steps!)



[Click here to make your own digital version of Rosie's Walk]




Tools
EXPLORE
TRAINING
MISSION
100%
Practice location 1: Use coding to explore the land.
00:00
View:
Top
3D
Rover
Previous
Next
Programming mode:
Block
Text
Block library
Drag blocks below
On ▶
Clear

With guiding questions and organizing ideas, the beginning stages of project based learning is there.

Project Based Learning

Developing an Idea for a Project

WHERE STUDENTS COLLABORATE TO SOLVE A PROBLEM IN THE REAL WORLD

WHERE STUDENT LEARN CONCEPTS AND APPLY THEM IN THEIR PROJECT

Consider your Scope

- Start small to begin
- How much time?
- How many subjects?
- Where will students have voice?

Foundations

We all have foundations or non-negotiables in our classrooms. What school/district expectations do you need to work within?

Community

Is there a way you can include a field trip or guest speaker within your project?

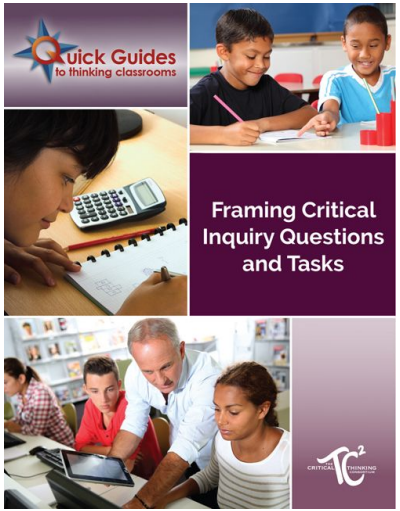
Inspiring Action

What's relevant and interesting to your students? This is often an avenue into a motivating experience that can be connected with curriculum.

Click on the links and images to access sites and resources!

The Critical Thinking Consortium TC2

[Frames for Innovation & Critical Thinking]



BUCK INSTITUTE FOR EDUCATION
my PBLworks

PBL Works Project Site:

[Filtered for Science-based projects grades 3 - 8]

Ready for Anything

How can we keep our communities safe and prepared for natural hazards?

Grade
3-5

Subjects
Science, ELA

Estimated Duration
19-23 instructional hours

Key Content
earth systems, natural hazards, regional climates, informational writing, communication

Education
Models of Excellence
The Center for High Quality Student Work

Interdisciplinary Projects that Live Beyond the Classroom

[Filtered for Science based projects for grades 3 - 8]

[Learning how to see]

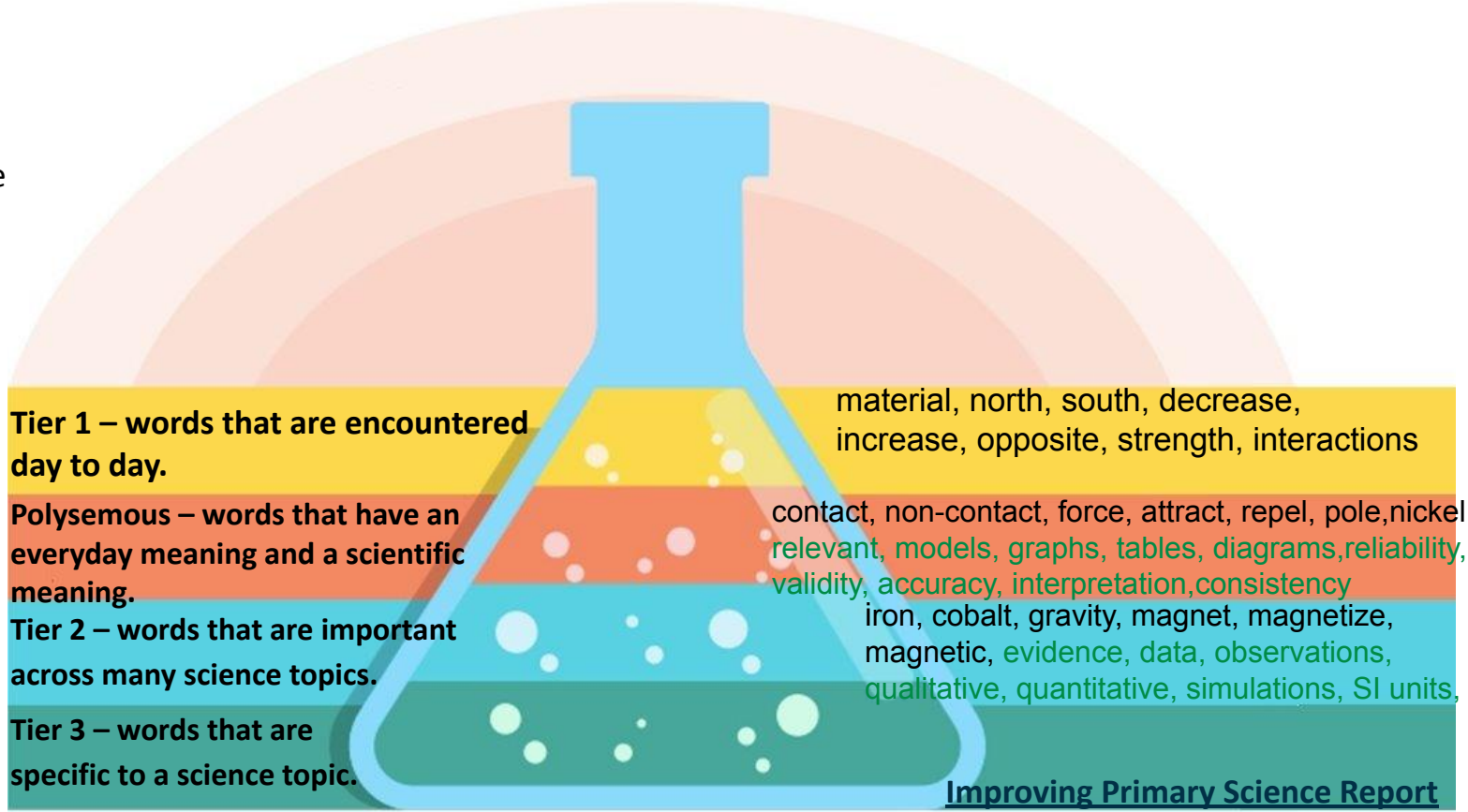
The What | Clarifying Expected Student Vocabulary

Gr. 4 Energy Verbs

- Analyze
- Describe
- Demonstrate
- Investigation
- Magnetize

Gr. 4 S.M. Verbs

- Collect
- Collaborate
- Decide
- Discuss
- Draw conclusions
- Interpret
- Represent



EAL & Science

Improving Primary Science Report

Building Clarity | Glossary for Science Verbs

What do our students need to be able to do?

Glossary for Student Action Verbs
~ Alberta's K-6 Science Curriculum

This glossary was developed to help provide clarification, context and support for teaching of the student actions in Alberta's K-6 Science Curriculum (2023).

Grades found as LO	Grades found within Ss & Ps	Verb	Definition
	K, 1, 2, 3, 4, 5, 6	discuss	To exchange ideas, thoughts, facts, etc.
1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	investigate	To use a process of inquiry or exploration to gain deeper understanding.

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Part 2:

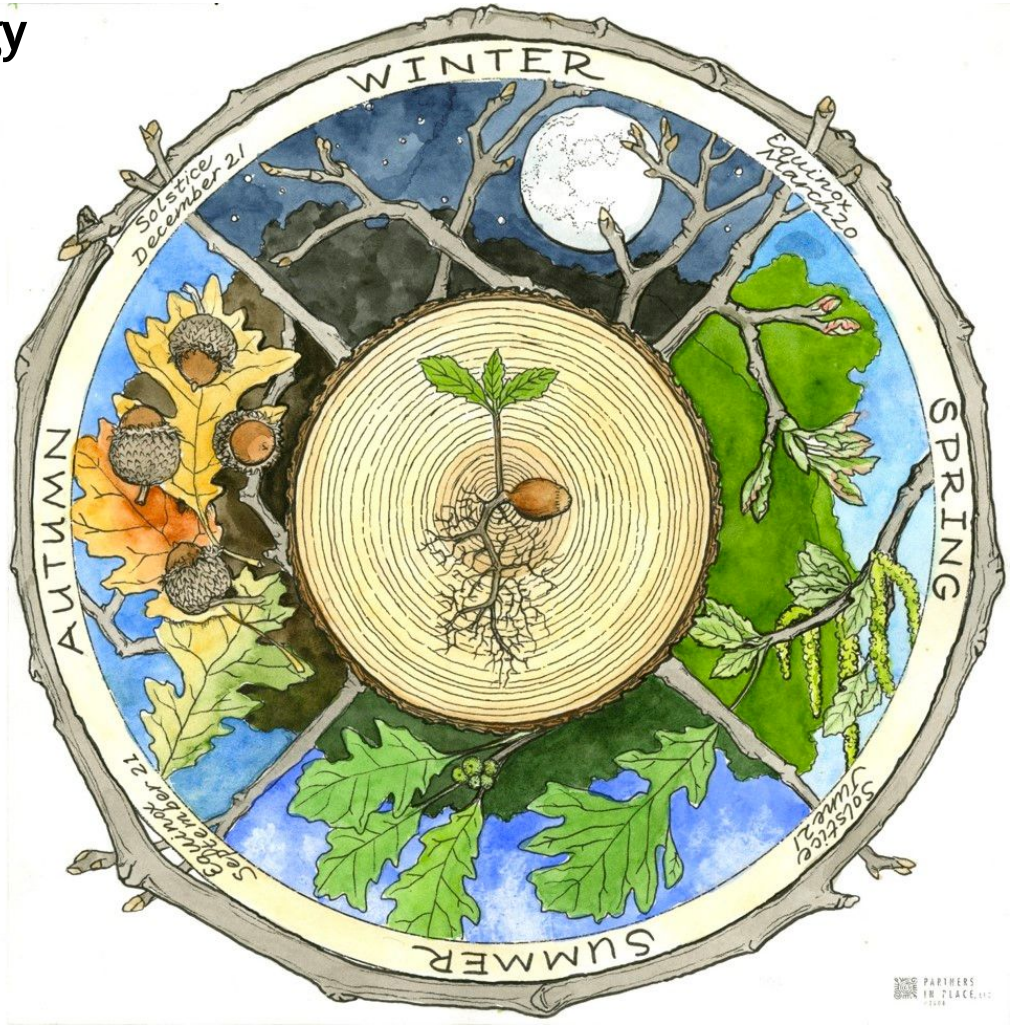
Take Science Learning Outside!

Link to Resource Guide

Learning Opportunity: Phenology

What is it?

Phenology is the study of ***cycles*** *and seasonal natural phenomena, especially in relation to climate and plant and animal life.*



Where does this live in curriculum?

Seasonal changes, Math: time as sequence of events, patterns, observations using senses, predictions

Environments interactions and seasonal changes incl. animal behaviour, migration, patterns, human behaviour, life cycles, observations using senses, recording data

Earth landforms and water relation to the sun, patterns, observations & predictions, recording data, landforms & bodies of water

Seasonal changes, Math: time as sequence of events, safety around water through seasons, animal behaviour through seasons, water cycles, respect & safe practices, forces moving objects

Where does this live in curriculum?

4 Warmth and sunlight throughout the year, water levels, organisms moving for warmth, weather patterns, human use of parks throughout the year/seasons, tracking astronomical phenomenon & lunar calendars

5 Tracking organisms in flight, weather patterns, availability of energy and natural resources, climate patterns over time, characteristics of regions and climates, precipitation, predictions, data interpretation, Indigenous knowledge systems and western tools, animal behavior patterns & cycles

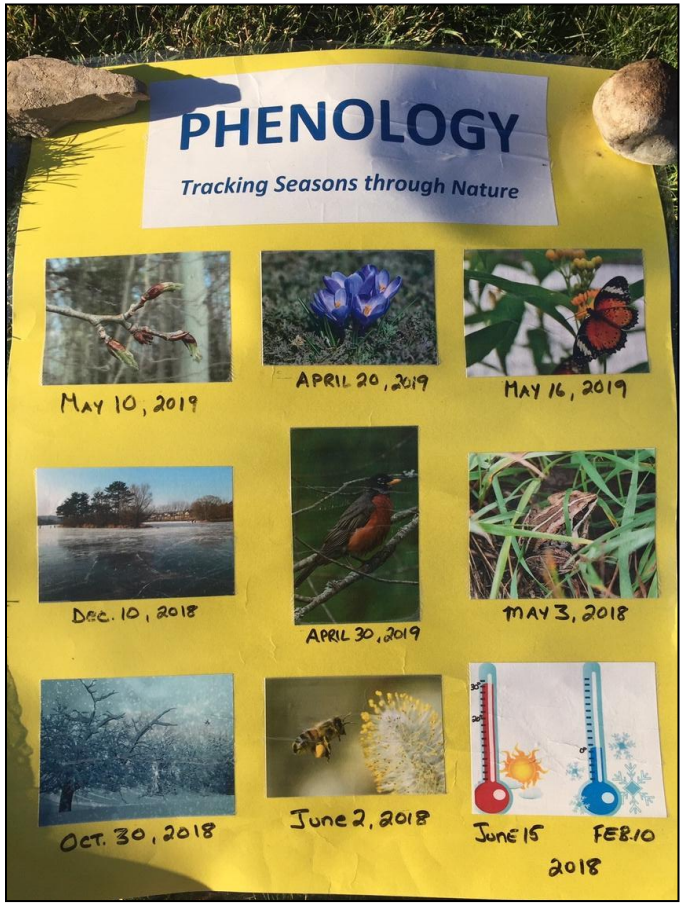
6 Bodies of water sustaining life throughout seasons, components of Earth's systems that interact to affect climate, changes in climate, document extreme weather events, collaboration between scientists, Elders and traditional Knowledge Keepers that understand effects of weather on people and the environment

Learning Opportunity #1: Phenology

How might this look in my practice?

Phenology = Nature's Calendar

- A study of firsts and lasts in nature
- A ready made source to find wonder
- Simple to integrate with curriculum
- Determines topic of nature studied
- Provides predictable timing



Learning Opportunity: Phenology

seek by iNaturalist

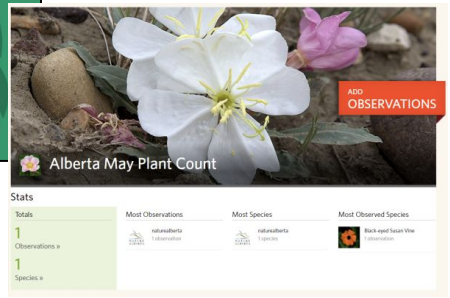
Get outside, explore, and learn about the nature all around you!

CALIFORNIA ACADEMY OF SCIENCES | NATIONAL GEOGRAPHIC

How might this look in my practice?

Getting to know your neighbours!

icewatch
ENGAGING CITIZENS IN SCIENCE



iNaturalist
Alberta May Plant Count

New Winter count Robe

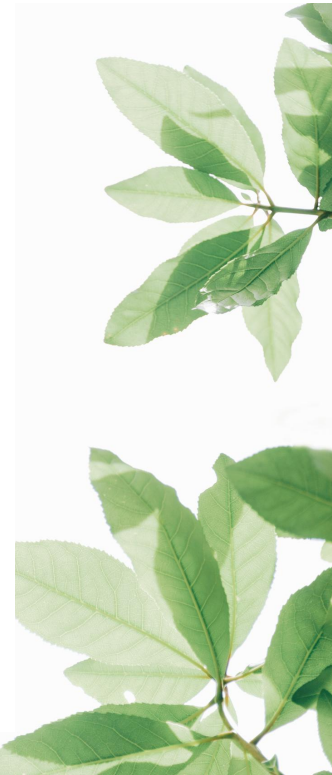
Blackfoot Winter Count

eBird

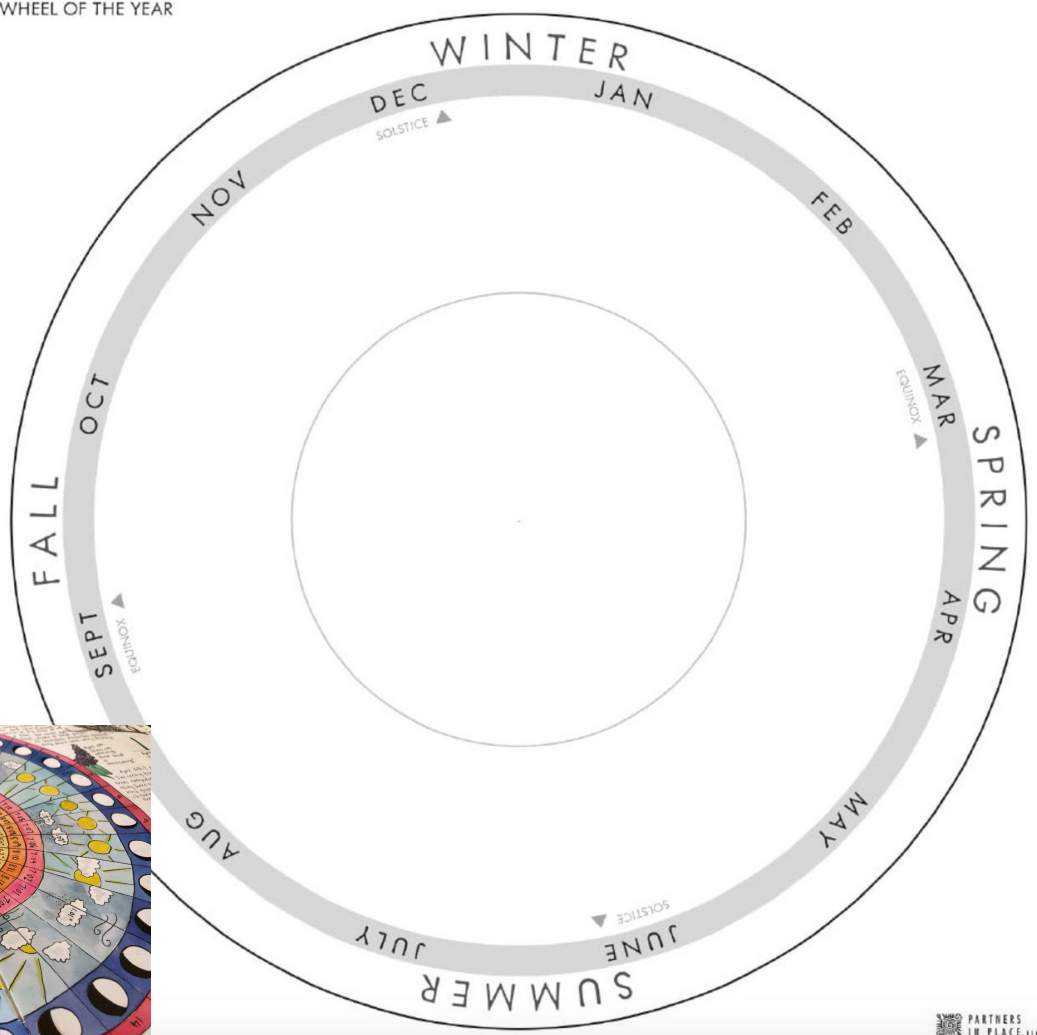
Our Phenological Calendar

Click here for a copy

	Sept/Oct	Nov/Dec	Jan/Feb	March/April	May/June
Weather / Climate (Earth Systems & Space)					
Recording Weather Data (Gr.5)					
Daylight Hours / Moon Phases (Gr.5)					
Astrological Phenomena (Gr. 4)					
Plants & Animals (*Living Systems & Energy)*					
Observing Plants (Gr. 4)					
Examining Ecosystems (Gr.6)					
Discovering Flight (Gr.4)					
Waste *(Matter)*					
Understanding Waste (Gr.4)					
Considering & Measuring States of 'Matter' (Gr.5 & 6)					
Caring for the Land (Earth Systems)					
Conserving Water (Gr.4)					
Considering Climate action (Gr.6)					
Acts of Stewardship / Reciprocity & FNMI Understanding					



WHEEL OF THE YEAR



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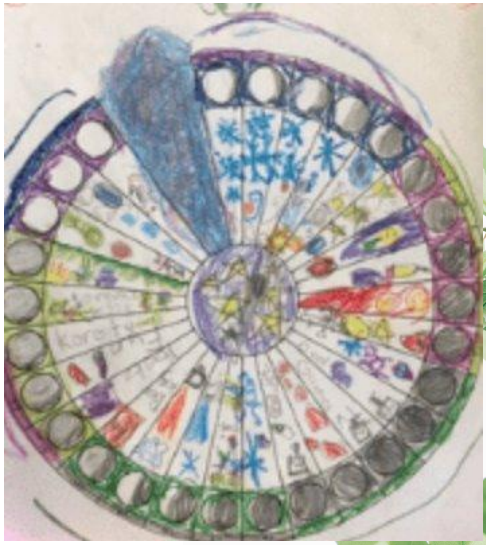
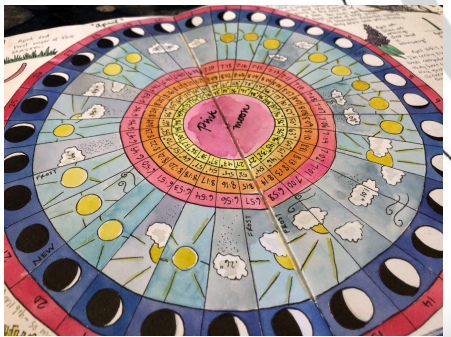
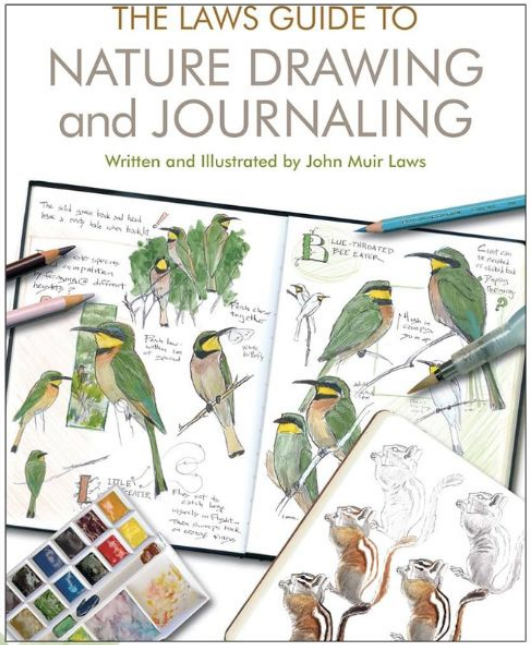






ELEMENTS OF A NATURE JOURNAL

Pictures

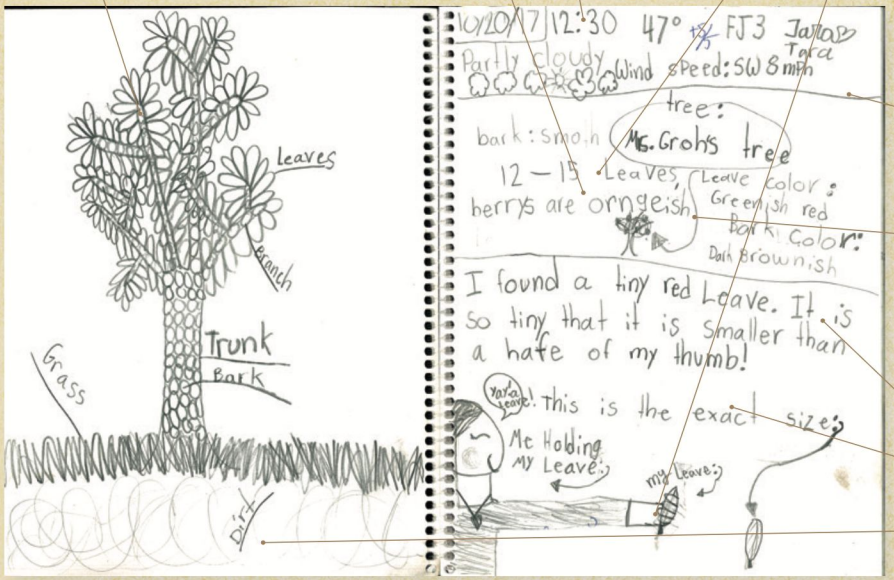
- Icons to show weather
- Drawings at different scales

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

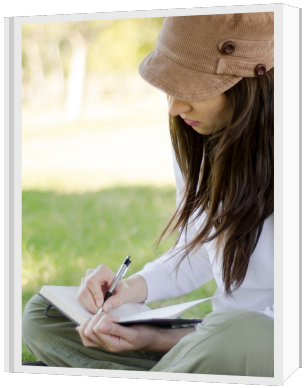
Words

Observations are recorded in

- Full paragraphs
- Short sentences or fragments
- Labels

Free Download:
https://johnmuirlaws.com/product/how-to-teach-nature-journaling/

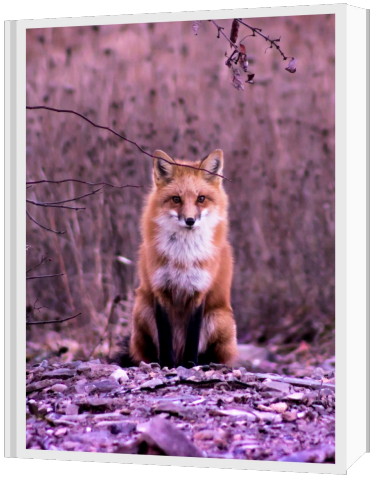
Addressing Learning Outcomes Through the Year



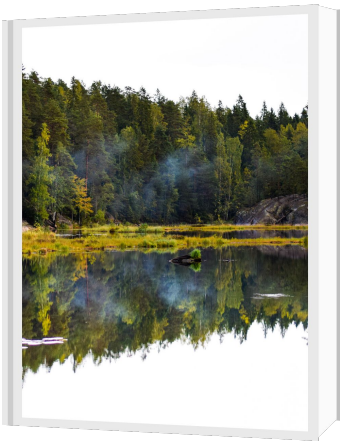
Sit Spots

Water &
Weather

Plants



Animals



Stewardship &
Reciprocity

[Click HERE for the Full Resource pkg]

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Alberta Professional Learning Consortium

Part 3:

High Quality Resources

New LearnAlberta Resources

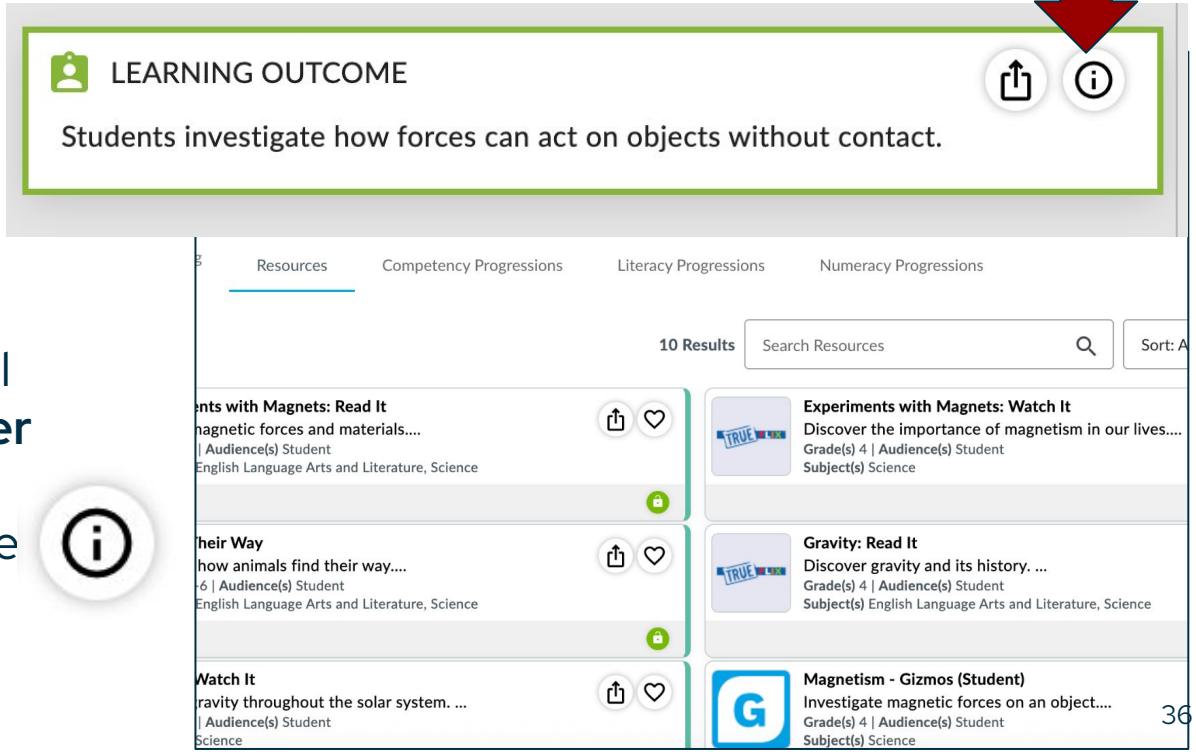
Supporting every educator in every classroom

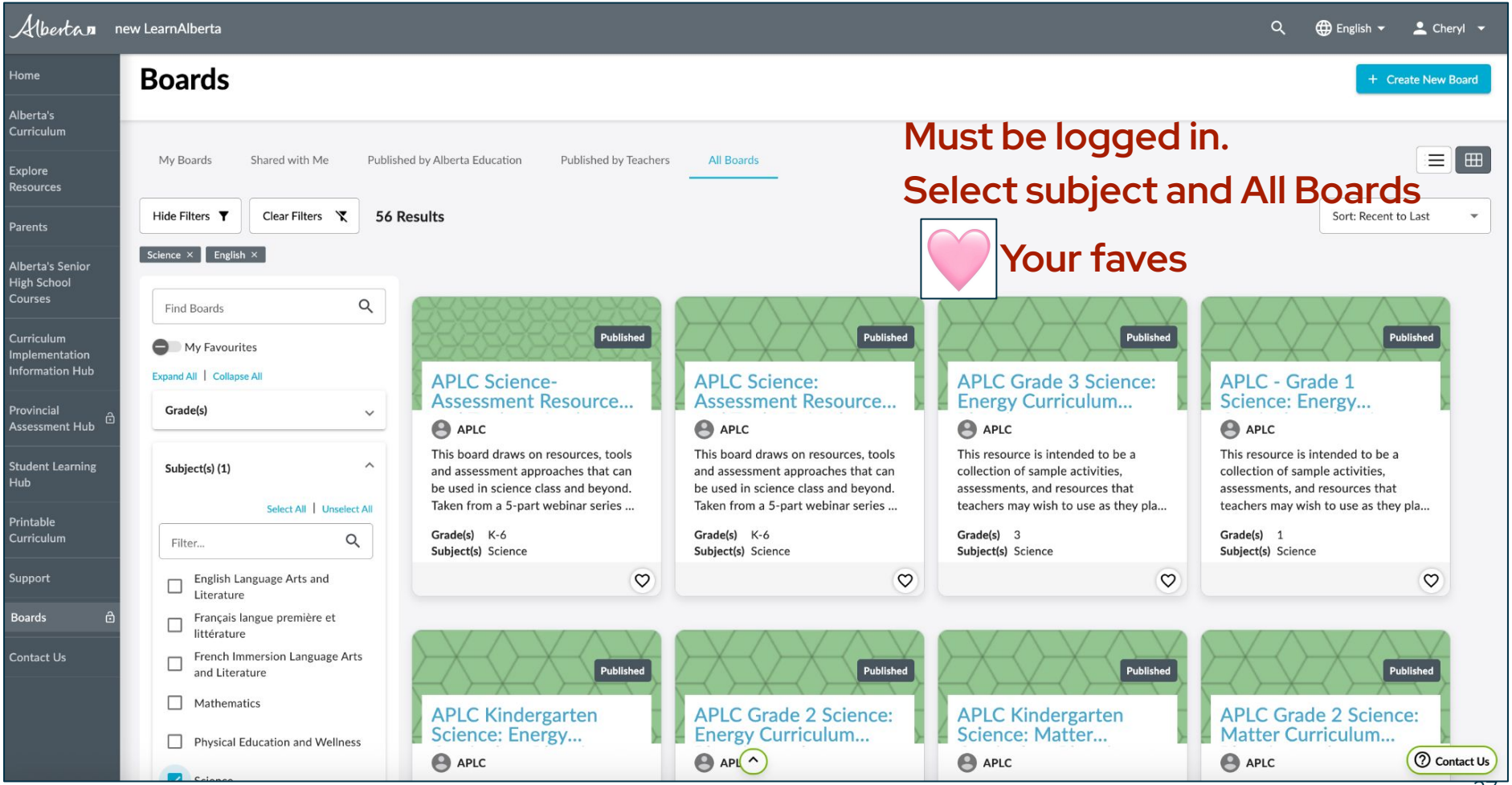
BEST way to find connected resources is:

1. **LOG IN to NewLearn Alberta** (ask your principal if you need an account)

2. Visit the interactive/digital curriculum → **HOVER over a Green Learning Outcome** box, choose the

3. Select **Resources**




new LearnAlberta
English
Cheryl
Home
Alberta's Curriculum
Explore Resources
Parents
Alberta's Senior High School Courses
Curriculum Implementation Information Hub
Provincial Assessment Hub
Student Learning Hub
Printable Curriculum
Support
Boards
Contact Us
Boards
+ Create New Board
My Boards
Shared with Me
Published by Alberta Education
Published by Teachers
All Boards
Must be logged in.
Select subject and All Boards
Hide Filters
Clear Filters
56 Results
Sort: Recent to Last
Your faves
Science ×
English ×
Find Boards
My Favourites
Expand All | Collapse All
Grade(s)
Subject(s) (1)
Select All | Unselect All
Filter...
English Language Arts and Literature
Français langue première et littérature
French Immersion Language Arts and Literature
Mathematics
Physical Education and Wellness
Published
APLC Science-Assessment Resource...
APLC
This board draws on resources, tools and assessment approaches that can be used in science class and beyond. Taken from a 5-part webinar series ...
Grade(s) K-6
Subject(s) Science
Published
APLC Science: Assessment Resource...
APLC
This board draws on resources, tools and assessment approaches that can be used in science class and beyond. Taken from a 5-part webinar series ...
Grade(s) K-6
Subject(s) Science
Published
APLC Grade 3 Science: Energy Curriculum...
APLC
This resource is intended to be a collection of sample activities, assessments, and resources that teachers may wish to use as they pla...
Grade(s) 3
Subject(s) Science
Published
APLC - Grade 1 Science: Energy...
APLC
This resource is intended to be a collection of sample activities, assessments, and resources that teachers may wish to use as they pla...
Grade(s) 1
Subject(s) Science
Published
APLC Kindergarten Science: Energy...
APLC
Published
APLC Grade 2 Science: Energy Curriculum...
APLC
Published
APLC Kindergarten Science: Matter...
APLC
Published
APLC Grade 2 Science: Matter Curriculum...
APLC
Contact Us

The Consortium

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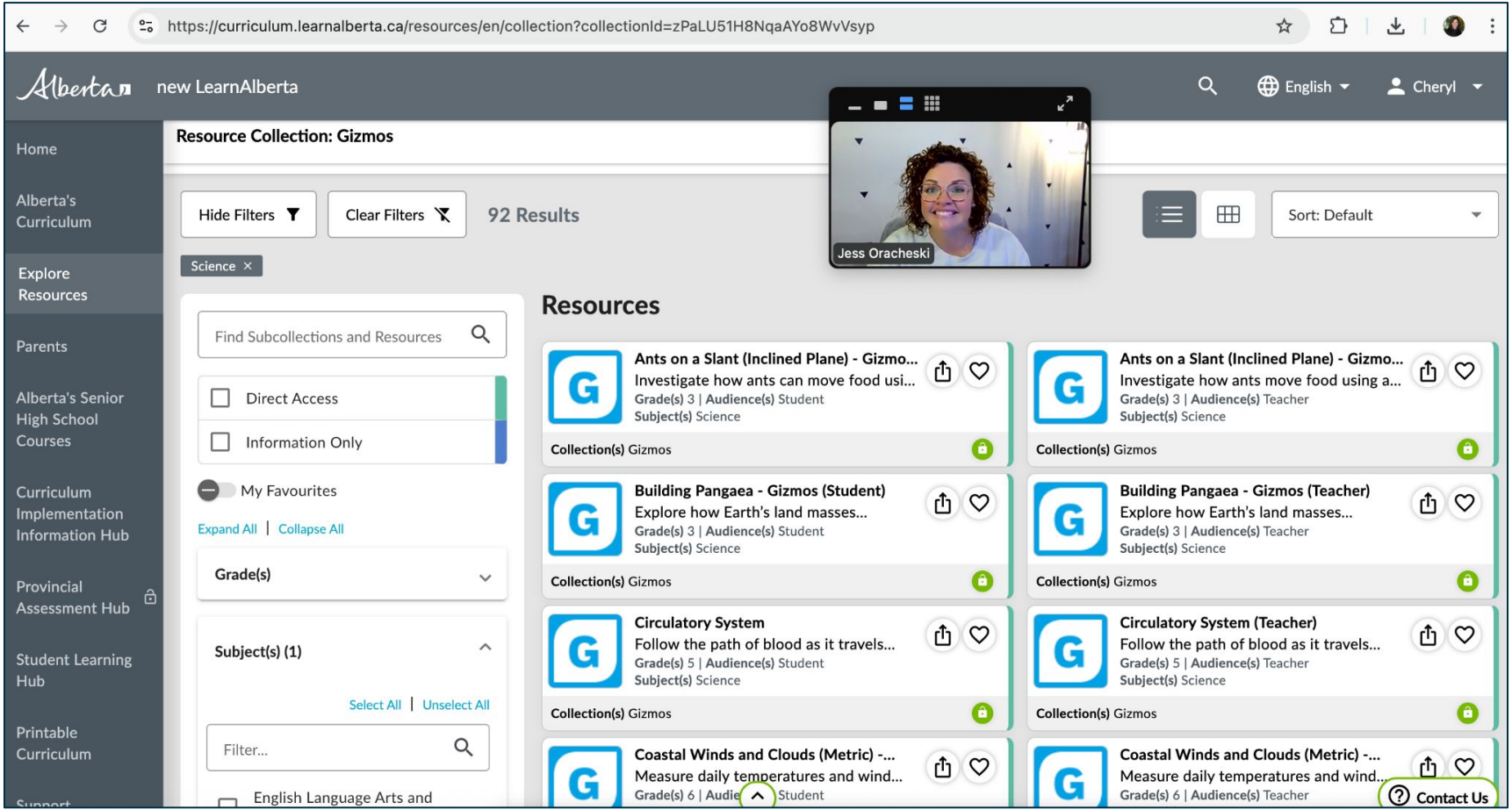
Supporting every educator
in every classroom

[Click here for the APLC Science Curriculum Implementation Toolkit]



[Click here for NewLearn Alberta – Resource Collection GIZMOS]

Resources By Grade, By Organizing Idea

Supporting every educator
in every classroom

Kindergarten

Grade 1

Grade 2

Grade 3

Grade 4

Grade 5

Grade 6

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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

cheryl.babin@aplc.ca

jess.oracheski@aplc.ca

aplc.ca