



**ESfs** Earth Science  
for Society



Resources and You



Energy for Us



One Dynamic Earth



Our Future!

**March 15, 16, 17, 2026**  
**MacEwan Hall**  
**University of Calgary**

**FREE Admission!**

**Open to the Public**

**12:00 pm – 5:00 pm Sunday March 15**  
**9:00 am – 2:15 pm Monday March 16**  
**6:00 pm – 9:00 pm Monday March 16**  
**9:00 am – 2:15 pm Tuesday March 17**

**Scavenger Hunt Booklet**  
**Grades 5 and over**

Canadian  
Geological  
Foundation



Fondation  
géologique  
du Canada

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# Earth Science for Society

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# Exhibitors

## **Resources and You** (Grade 5 and over: p S4-S5; Grade 4 and under: p J2-J3)

Canadian Natural Resources

Canadian Society of Exploration Geophysicists

Natural Resources Canada – Geological Survey of Canada (Calgary)

Mining Matters

WISE (UCalgary)

Yukon Dan Gold Panning

## **Energy for Us** (Grade 5 and over: p S6-S7; Grade 4 and under: p J4-J5)

Canadian Energy Geoscience Association Foundation

Canadian Nuclear Society

CREWES, University of Calgary

RASC Calgary

Switch Classroom

Ten Peaks Innovation

*Answer the questions  
for the prize draw  
(pages 13/14) and you  
may win!*

## **One Dynamic Earth** (Grade 5 and over: p S8-S9; Grade 4 and under: p J6-J7)

Alberta Geological Survey of the Alberta Energy Regulator

Alberta Palaeontological Society (Sunday only)

Canadian Rockies Earth Science Resource Centre

Department of Earth, Energy and Environment

Devonian Reef Diorama - Sandstone Prehistoric Safaris Calgary

Ed Leith Cretaceous Menagerie Museum

ESfS Trilobite Fossil Station

## **Our Future!** (Grade 5 and over: p S10-S11; Grade 4 and under: p J8-J9)

Calgary Rock and Lapidary Club

Canadian Association of Geophysical Contractors

Energy Safety Canada / Careers in Energy

Journey 2050

Ocean Networks Canada

Rothney Astrophysical Observatory

*Visit the 4 pavilions and  
answer any exhibitor's  
question to get a stamp  
from a geoscience guide!*



# Resources and You

## *Grade 5 and over*

### **Canadian Natural Resources**

What is the solid part of the Earth's surface that consists of rock, soils and sediments?

- Lithosphere
- Asthenosphere
- Geosphere
- Biosphere

### **Canadian Society of Exploration Geophysicists**

What do seismic waves help scientists study?

- The weather
- The layers beneath Earth's surface
- Animal migration
- The speed of cars

### **Mining Matters**

Minerals are naturally occurring, solid, inorganic substances made of a regular, repeating arrangement of atoms and molecules. Scientific tests are used to measure the physical properties of minerals. Some of these tests include:

- Scratching a mineral on a small tile to see what its colour is when it is powdered
- Using Mohs Scale and equipment like a copper coin to measure the hardness of a mineral
- Using a magnet to see if a mineral is magnetic
- Using a specialized piece of equipment to determine if a mineral conducts electricity
- All the above



# Resources and You

## *Grade 5 and over*

### **Natural Resources Canada - Geological Survey of Canada (Calgary)**

Which energy resources produces the most electricity in Alberta??

- Oil
- Natural Gas
- Coal
- Renewables (Wind & Solar)

### **WISE (UCalgary)**

What is the main property of a non-Newtonian fluid?

- It has constant viscosity (thickness)
- It has changing viscosity (thickness)
- It has no viscosity (thickness)
- It turns into a gas when force is applied

### **Yukon Dan Gold Panning**

What mineral tricked many people?

- Sulphur
- Calcite
- Iron pyrite



# Energy for Us

## *Grade 5 and over*

### **Canadian Energy Geoscience Association Foundation**

Which layer of the Earth is known for its solid, outermost part?

- Mantle
- Crust
- Plates
- Core

### **Canadian Nuclear Society**

Canada is one of the top 3 producers of the element used for nuclear power. Which element is it?

- Aluminum
- Strontium
- Barium
- Uranium

### **CREWES, University of Calgary**

Which of the following seismic sources can be controlled?

- Earthquake
- Dynamite
- Meteorite
- Landslide



# Energy for Us

## *Grade 5 and over*

### **RASC Calgary**

Which is the best answer for “Why are impact craters more common on the Moon than on the Earth even though both bodies sit within the inner Solar System?”

- The Moon has no atmosphere and most small asteroids and comets burn up in the Earth’s atmosphere before hitting the surface
- There is essentially no erosion on the Moon and thus just about any impact can be preserved forever
- The Moon’s compact size means that its gravity is stronger than that of Earth’s
- Plate tectonics on Earth helps erase some older craters
- All answers EXCEPT the third one are correct

### **Switch Classroom**

Why does changing the shape or angle of windmill blades affect how much electricity can be generated?

- It changes how much wind energy is captured
- It increases the size of the battery
- It turns wind into stored chemical energy
- It stops energy losses in the circuit

### **Ten Peaks Innovation**

What technology pair will generate electricity with reduced greenhouse gas emissions for AI data centres in (Central) Alberta?

- Coal with Carbon Capture and Storage (CCS)
- Coal with Battery Energy Storage System (BESS)
- Natural gas with Carbon Capture and Storage (CCS)
- Natural gas with Battery Energy Storage System (BESS)



# One Dynamic Earth

*Grade 5 and over*

## **Alberta Geological Survey of the Alberta Energy Regulator**

How many different metallic and industrial minerals are found in Alberta?

- 1-5
- 5-15
- 15-30
- Over 30

## **Alberta Palaeontological Society (Sunday only)**

Are you allowed to collect fossils in Alberta?

- Yes, you can dig up whatever you want wherever you want
- No, leave all fossils for professional scientists
- Yes, but only certain kinds of fossils, because some are more important than others
- Yes, but you can only surface collect them, because digging up fossils should be left to authorized professionals

## **Canadian Rockies Earth Science Resource Centre**

Name the most common geophysical method used for accurately locating targets to drill in the subsurface

- Aeromagnetic Survey
- Gravity Survey
- Seismic Survey
- Telephone Survey



# One Dynamic Earth

*Grade 5 and over*

## **Department of Earth, Energy and Environment**

What is the main purpose of the augmented reality sandbox?

- To show how land height (elevation) changes across a landscape
- To show how mountains move across the Earth
- To predict earthquakes
- To measure the age of rocks

## **Devonian Reef Diorama - Sandstone Cretaceous Safaris Calgary**

What animals were found in Alberta's ancient coral reefs?

- Trilobites, nautiloids, whales, seals, crinoids, brachiopods, and sharks
- Trilobites, nautiloids, snails, brachiopods, bryozoans, crinoids, sharks, and placoderms
- Trilobites, nautiloids, dinosaurs, bryozoans, pterosaurs, and sharks
- Trilobites, kelp, stromatolites, Godzilla, Ogopogo, krakens, and sharks

## **Ed Leith Cretaceous Menagerie Museum**

How old is the oldest rock from Earth?

- 4 billion years
- 3 billion years
- 4 million years
- 4,000 years

## **ESfS Trilobite Fossil Station**

When trilobites grow and shed their shell it is called....

- Growth Spurt
- Shell Removal
- Moulting
- Dead Skin



# Our Future!

## *Grade 5 and over*

### **Calgary Rock and Lapidary Club**

What kind of rocks can be found in Alberta?

- Metamorphic
- Igneous
- Sedimentary
- Fossils
- Crystals
- Minerals
- All of the above

### **Canadian Association of Geophysical Contractors**

Which group usually works first on a seismic exploration project?

- Drillers
- Juggies
- Surveyors
- Helicopters

### **Energy Safety Canada / Careers in Energy**

How many people work in the Canadian energy industry?

- over 30,000
- over 120,000
- over 200,000
- over 500,000



# Our Future!

*Grade 5 and over*

## **Journey 2050**

Which food travels the farthest to reach us here in Calgary?

- Alberta Barley
- Indian Rice
- Kenyan Coffee
- Mexican Limes

## **Ocean Networks Canada**

Which of the following phylum is only found in the ocean?

- Mollusca
- Chordata
- Echinodermata
- Arthropoda

## **Rothney Astrophysical Observatory**

What is Gravity?

- Magnetic pull between two objects
- Force that evaporates black holes
- Charged particles that interact with Earth's atmosphere and create Aurora
- Attractive force that brings two objects together

# Geo-Theatre Presentations

## Sunday March 15

### **Dr. Emily L. Bamforth: *Mysterious: Dinosaurs of Western Canada*** (1pm, 3pm)

Western Canada is world famous for its incredible dinosaur deposits. From the badlands of southern Alberta to the grasslands of Saskatchewan to the forests of the northern Peace Region, Canada contains one of the best records of Cretaceous dinosaur diversity found anywhere in the world. Did you know that the world's largest *T. rex* was found in Saskatchewan, or that one of the world's largest dinosaur bonebeds lies in a northern Albertan forest? In this presentation, we will explore five iconic, weird, and wonderful dinosaurs from western Canada. Each of these animals has profoundly shaped paleontologists' understanding of the Cretaceous world that lies beneath our feet. These fossils have a remarkable story to tell us. As the people who study Canada's dinosaurs will tell you, much of the story remains to be told...

Dr. Emily Bamforth is the Curator of the Philip J. Currie Dinosaur Museum in Wembley, AB, an adjunct professor at the University of Alberta and the University of Saskatchewan, and a professional paleontologist.



### **Dr. Jon Noad: *How to find fossils, and what to do when you find them: with examples from around Calgary*** (2pm, 4pm)

Most of us have tried our luck at fossil hunting, with mixed success. But with a little preparation, some research and some geo-forensic science, you can vastly increase your chances of making that once in a lifetime find. Get started with online resources and try to increase your familiarity with different types of fossils - especially helpful with using pattern recognition of fossils in the field. Learn how to prospect safely on rock outcrops. Once you have found your fossil, you will need to know what information to record, how to protect it if it is fragmented, where to report your find and, most importantly, whether you are allowed to keep it. We will also look at how professional palaeontologists go about their work, including the use of Google Earth, drones, helicopters and climbing equipment.

Jon Noad has worked as a mining and marine geologist, in oil and gas as well as teaching at universities, running field trips and core workshops. He joined Stantec as a qualified Palaeontologist in 2022 and now undertakes site monitoring for new pipelines and construction projects.



**Prize draw contest for K-12 students**  
**Answer the questions to be eligible to win a prize!**

What did you like learning about today?  
Please check your top three answers

- |   |  |
|---|--|
| <input type="radio"/> Rocks and minerals              | <input type="radio"/> Technology/Instruments |
| <input type="radio"/> Fossils                         | <input type="radio"/> Our Earth              |
| <input type="radio"/> Exploring for natural resources | <input type="radio"/> Potential careers      |
| <input type="radio"/> Renewable energy                | <input type="radio"/> Energy sources         |

What did you like best about ESfS?  
Please check your top three answers

- |  |  |
|--|--|
| <input type="radio"/> Hands-on activities          | <input type="radio"/> Models/displays        |
| <input type="radio"/> Lots of cool information     | <input type="radio"/> Scavenger book/stamps  |
| <input type="radio"/> Friendly/informative people  | <input type="radio"/> Lots of awesome topics |
| <input type="radio"/> It made learning/science fun | <input type="radio"/> Career info            |
| <input type="radio"/> Info about the Earth         | <input type="radio"/> Freebies               |

I learned about Earth science in a fun, educational, and interactive way

- Yes       No

I learned about how Earth science plays an important role in our lives

- Yes       No

Please tell us something about your experience today

So that we can contact you if you win: (please print clearly)

Name Age

School/Youth groups only: School/Youth group

Public visitors only: Parent/Guardian name  
and Home phone

*Tear out this page and drop it in the box or give it to a volunteer*

## Exhibitors' Websites

Alberta Geological Survey of the Alberta Energy Regulator	ags.aer.ca
Alberta Palaeontological Society	albertapaleo.org
Calgary Rock and Lapidary Club	crlc.ca
Canadian Association of Geophysical Contractors	cagc.ca
Canadian Energy Geoscience Association Foundation	cegageos.ca/foundation/
Canadian Natural Resources	cnrl.com
Canadian Nuclear Society	cns-snc.ca
Canadian Rockies Earth Science Resource Centre	cresrc.ca
Canadian Society of Exploration Geophysicists	cseg.ca/foundation/about-our-programs
CREWES, University of Calgary	crewes.org
Department of Earth, Energy, and Environment	science.ucalgary.ca/earth
Devonian Reef Diorama - Sandstone Prehistoric Safaris Calgary	www.sandstoneprehistoricsafaris.com
Earth Science for Society	esfscanada.com
Ed Leith Cretaceous Menagerie Museum	umanitoba.ca/environment-earth-resources/ed-leith-cretaceous-menagerie
Energy Safety Canada / Careers in Energy	careersinenergy.ca
Journey 2050	journey2050.com
Mining Matters	miningmatters.ca
Natural Resources Canada - Geological Survey of Canada (Calgary)	natural-resources.Canada.ca/minerals-mining/geological-survey-canada
Ocean Networks Canada	oceannetworks.ca
RASC Calgary	calgary.rasc.ca
Rothney Astrophysical Observatory	science.ucalgary.ca/rothney-observatory
Switch Classroom	switchclassroom.org
Ten Peaks Innovation	10peaks.ca
WISE (UCalgary)	uofcwise.com
Yukon Dan Gold Panning	yukondan.com

## ESfS Organizing Committee

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# Our Future!

## *Grade 4 and under*

### **Journey 2050**

Which food travels the farthest to reach us here in Calgary?

- Alberta Barley
- Indian Rice
- Kenyan Coffee
- Mexican Limes

### **Ocean Networks Canada**

What kind of data does a hydrophone record?

- Video data
- Sound data
- Temperature data
- Current and tide data

### **Rothney Astrophysical Observatory**

What invisible force keeps our feet planted on the ground?

- Love from your parents
- Love from Yoda
- Gravity
- Weight and volume



# Our Future!

## *Grade 4 and under*

### **Calgary Rock and Lapidary Club**

What can I do if I, or my family, join the Calgary Rock and Lapidary Club?

- Cut rocks
- Polish rocks
- Learn more about rocks
- Find new rocks
- All of these ....and more

### **Canadian Association of Geophysical Contractors**

Which of these animals might workers see on a seismic program in Canada?

- Kangaroo
- Penguin
- Caribou
- Dolphin

### **Energy Safety Canada / Careers in Energy**

In Canada there is enough pipeline to circle the Earth how many times?

- 1
- 5
- 10
- 17



# One Dynamic Earth

## *Grade 4 and under*

### **Department of Earth, Energy and Environment**

What do the colors in the augmented reality sandbox show?

- Different kinds of sand
- How high or low the land is
- Where animals live
- How old the rocks are

### **Devonian Reef Diorama - Sandstone Cretaceous Safaris Calgary**

What animals were found in Alberta's ancient coral reefs?

- Trilobites, nautiloids, whales, seals, crinoids, brachiopods, and sharks
- Trilobites, nautiloids, snails, brachiopods, bryozoans, crinoids, sharks, and placoderms
- Trilobites, nautiloids, dinosaurs, bryozoans, pterosaurs, and sharks
- Trilobites, kelp, stromatolites, Godzilla, Oogopogo, krakens, and sharks

### **Ed Leith Cretaceous Menagerie Museum**

How old is the oldest rock from Earth?

- 4 billion years
- 3 billion years
- 4 million years

### **ESfS Trilobite Fossil Station**

Trilobites are some of the oldest fossils on earth. How many years old are they?

- 5,000
- 100 million
- 500 million
- 900 million



# One Dynamic Earth

## *Grade 4 and under*

### **Alberta Geological Survey of the Alberta Energy Regulator**

Which minerals are found in Alberta?

- Gold
- Lithium
- Gypsum
- All of the above

### **Alberta Palaeontological Society (Sunday only)**

Are you allowed to collect fossils in Alberta?

- Yes, you can dig up whatever you want wherever you want
- No, leave all fossils for professional scientists
- Yes, but only certain kinds of fossils, because some are more important than others
- Yes, but you can only surface collect them, because digging up fossils should be left to authorized professionals

### **Canadian Rockies Earth Science Resource Centre**

What device is used for detecting seismic events?

- Radio
- Geophone
- Microscope
- House phone



# Energy for Us

## *Grade 4 and under*

### **RASC Calgary**

What is a simple thing you could look for if you think a rock is a meteorite from space?

- Fossils
- Air bubbles
- Magnetic minerals

### **Switch Classroom**

In the Play-Doh circuit activity, what must happen for the LED light to turn on?

- The battery must touch only one wire
- Electricity must travel in a complete loop
- The Play-Doh must be dry
- The LED must be very large

### **Ten Peaks Innovation**

Which type of energy involves splitting tiny particles inside atoms to make heat and steam?

- Geothermal energy
- Natural gas
- Hydro electricity
- Nuclear energy



# Energy for Us

## *Grade 4 and under*

### **Canadian Energy Geoscience Association Foundation**

Which is a fossil?

- A diamond
- A shell
- A piece of pottery
- Lava

### **Canadian Nuclear Society**

Canada produces a lot of the world's uranium for nuclear power. Which province produces the most uranium?

- BC
- Alberta
- Saskatchewan
- Manitoba

### **CREWES, University of Calgary**

What does a geophone do?

- Hop
- Skip
- Jump
- Listen



# Resources and You

## *Grade 4 and under*

### **Natural Resources Canada - Geological Survey of Canada (Calgary)**

What kind of rocks do you look for fossils in ?

- Igneous Rocks
- Metamorphic Rocks
- Sedimentary Rocks
- All of the above

### **WISE (UCalgary)**

What happens when you squeeze a non-Newtonian fluid like Oobleck?

- It becomes hard, like a solid
- It stays liquid
- It turns into a gas
- It changes colour

### **Yukon Dan Gold Panning**

What is gold fever?

- The sickness for gold (money)
- Illness suffered by gold miners



# Resources and You

## *Grade 4 and under*

### **Canadian Natural**

Which type of rock is most commonly a hydrocarbon target in the Western Canadian Sedimentary Basin?

- Igneous
- Sedimentary
- Volcanic
- Metamorphic

### **Canadian Society of Exploration Geophysicists**

What does a slinky demonstrate at the CSEG booth?

- A bouncy toy
- How seismic waves move through the ground
- How to build a tower
- The speed of a car

### **Mining Matters**

A mineral is a naturally occurring solid composed of the same substance throughout. Which of the statements below are true about minerals?

- Minerals occur in many colours
- Minerals can be hard or soft
- Some minerals are magnetic
- Minerals are used to make things we use everyday
- All the above



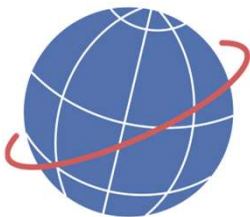
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