

TEACHER'S GUIDE

ROCKIN' ALBERTA RESOURCES

PROGRAM OVERVIEW

PROGRAM DESCRIPTION

Explore Alberta's natural heritage through three sciences! In Geography, students will learn about Alberta's six ecozones and the many provincial resources. The three main rock types will be covered during Geology. Finally, during Palaeontology we'll find out how the Royal Tyrrell Museum, mentioned specifically in the Alberta grade 4 curriculum, contributes to the palaeontological knowledge of the province.

AUDIENCE Grades 3–4 * (maximum 35 students)

ALBERTA CURRICULUM CONNECTIONS

Grade 3 Science Rocks and Minerals

Grade 4 Social Studies Alberta: Its Geography and People

PROGRAM OBJECTIVES

Participants will:

1. Identify the six major geographical regions of Alberta, or ecozones, and review the provincial symbols.
2. Review the three main rock types (sedimentary, igneous, and metamorphic) and find out which type is predominant in the badlands.
3. Gain a greater understanding and appreciation of the science of palaeontology and how the Royal Tyrrell Museum contributes to the preservation of Alberta's rich fossil heritage.

PRE-PROGRAM Have the participants seated in rows, all in view of the camera.

PROGRAM FORMAT

1. Introduction to the program; "Which is which?" game
2. Geography
3. Geology
4. Palaeontology
5. Questions and conclusion

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CORE CONTENT

GEOGRAPHY

The study of the Earth's surface including the shape of the Earth, climate, and distribution of life.

Alberta Facts

660,000 km²

4.1 million people

- Japan is approximately half the size of Alberta, but has a population of 128 million

Wild rose is the provincial flower

Petrified wood is the provincial stone

Six major geographical regions, or ecozones

1. Grassland
2. Parkland
3. Foothills
4. Rocky Mountains
5. Boreal Forest
6. Canadian Shield

GEOLOGY

The scientific study of the origin, history, and structure of the Earth.

Three basic rock types:

1. Sedimentary: formed from smaller fragments of rocks, minerals, and/or the remains of organisms.
2. Igneous: formed from the cooling of lava or magma
3. Metamorphic: formed from when sedimentary or igneous rocks are physically and/or chemically changed by heat and pressure.

Alberta badlands

Glaciers covered the area approximately 15,000 years ago

An ice dam caused a huge lake to form while the glaciers were melting

Eventually the dam broke, releasing a torrent of water that carved out the landscape

Continual erosion of the valley exposes the fossils for discovery

Primarily sedimentary rocks make up the badlands, but glacial erratics (igneous and metamorphic) are present as well.

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PALAEONTOLOGY

Palaeontology is the study of ancient plant and animal life based on the fossil record.

A fossil is the remains, traces, or imprint of a prehistoric organism preserved in rock.

Since many significant fossils are discovered in Alberta, special legislation was created to protect fossil resources.

The *Alberta Historical Resources Act*

Created in 1973, amended to include fossils in 1978

No fossils in the province are allowed to be unearthed without permission from the Government of Alberta (includes any work done by palaeontologists)

- Breaking this law could result in a \$50,000 fine, a year in jail, or both

Surface collecting (fossils loose on the ground that require no digging) is permitted provided:

- You are on your own land, provincial Crown land, or you have the landowner's permission
- The fossil is not removed from the province of Alberta

If you find a fossil

Locate it – Where did you find the fossil? Use a map or a GPS to pinpoint your location, or use landmarks around you that would help someone else find the location.

Describe it – What does it look like? Take a picture if you can.

Report it – Get in touch with your local museum, or directly with the Royal Tyrrell Museum, to report your find.

Joseph Burr Tyrrell – The Museum's Namesake

A geologist with the GSC (Geological Survey of Canada) who was sent to the Red Deer River valley to search for coal seams viable for coal mining.

Responsible for the first dinosaur discovery in the Alberta badlands in 1884. It was the partial skull of a carnivorous dinosaur, later named *Albertosaurus sarcophagus* (in 1905).

The Royal Tyrrell Museum of Palaeontology

Opened in September 25, 1985

Dedicated to researching, sharing, and preserving Alberta's rich fossil heritage

Over 150,000 specimens in the collection

Eight full-time palaeontologists who research various areas of palaeontology

Upwards of 400,000 visitors each year

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KEY TERMS

Fossil	The remains, traces, or imprint of a prehistoric organism preserved in rock
Geography	The study of the Earth's surface (shape of the Earth, climate, and distribution of life)
Geology	The scientific study of origin, history, and structure of the Earth
Igneous	Rock formed from the cooling of lava or magma
Metamorphic	Rock formed from when sedimentary or igneous rocks are physically and/or chemically changed by heat and pressure
Palaeontology	The study of ancient life on Earth based on the fossil record
Sedimentary	Rock formed from smaller fragments of rocks, minerals, and/or the remains of organisms