ALBERTA DISTANCE LEARNING CENTRE

SCIENCE 20

Unit C: The Changing Earth
Student Guide

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Science 20
Unit C: The Changing Earth
ADLC Student Guide

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Unit C The Changing Earth

This unit uses diverse Alberta landscapes to present a theory on how Earth was formed over billions of years. You will see that many different environments must have existed over the years to create these diverse landscapes.

Being able to read the past is important to scientists so they can understand how Earth was formed and what changes are still occurring. How do scientists determine how Earth looked millions of years ago? In this unit you will examine a number of formations in Alberta that give clues to the geological history of the province and to all of Earth.

❑ Read the Unit C introduction on pages 292 and 293 of the textbook.

Chapter 1: The Abyss of Time

In this chapter you will view the internal structure of Earth and describe geological processes that have occurred over vast spans of time. You will learn about theories that show Earth has a long history of development, and you will also discover that geological change proceeds very slowly.

❑ Turn to page 294 of the textbook, and read the Chapter 1 introduction.

Deep time involves time spans that are not comparable to any that you encounter in your day-to-day life. Yet, you need a sense of deep time to understand explanations of geological processes. You will find out more about deep time in the next activity.

Try This Activity: Deep Time

Note: If you do not have access to a cash-register tape, you can create your own tape by cutting sheets of plain paper into strips about 4 cm wide. Tape the strips together until you get a strip that is 5 m long.

❑ Read the activity on page 295 of the textbook. Follow the directions, and answer the questions.

Check your answers with those in the "Suggested Answers" in the online course.

Lesson 1.1: The Long Beginning

There are various outcroppings of rock and trenches around the world. These features indicate that Earth's crust is not solid but instead is composed of a number of rigid plates that move and slide up over their edges. In this lesson you will describe the interior structure of Earth and analyze how movement within Earth creates crustal movement.

❑ Read pages 296 to 299 of the textbook. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

Way below the ground you stand on, convection currents provide the driving force behind the movement and shifting of Earth's crust. These convection currents are invisible to you. In the next activity you will study convection currents in an aquarium. This activity will provide you with more insight into the motion of Earth's mantle.

Utilizing Technology: Convection

❑ **Read the activity on page 300 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read pages 300 and 301 of the textbook, starting at "Dynamic Crust" and ending at "1.1 Summary". Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

❑ Read "1.1 Summary" on page 301 of the textbook. Then complete "1.1 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

❑ Go to Assignment 1.1: The Long Beginning.

Lesson 1.2: Early Life

Did you know that Alberta was once at the edge of a tropical sea? Fossil evidence collected from sedimentary rocks in Waterton Lakes National Park indicates that part of the province was once at the edge of an ancient sea.

❑ Read all of pages 302 to 304 of the textbook, ending at the investigation. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

Every breath you take provides you with oxygen from the atmosphere. However, there has not always been as much oxygen in the atmosphere as there is today. Banded iron in sedimentary rock indicates that the level of atmospheric oxygen in the early atmosphere varied widely. You will find out more information in the next investigation.

Investigation: The Early Atmosphere

❑ **Read the investigation on pages 304 and 305 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "Snowball Earth" on page 305 of the textbook.

❑ Read "1.2 Summary" on page 305 of the textbook. Then, complete "1.2 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

❑ Go to Assignment 1.2: Early Life.

Lesson 1.3: Strange Rocks

Spiral-shaped rocks and other rocks with the shape of living things have always been important as curiosities. Before people knew how fossils formed, such rocks would have seemed particularly strange. In this lesson you will find that the strange rocks and the sedimentary rock in which they are found have become even more important; they are now known to reveal the geological history of Earth.

❑ Read the lesson introduction on page 306 of the textbook.

Determining which organism a fossil represents involves interpretation. Try interpreting fossil evidence in the next activity.

Try This Activity: Take a Wild Guess!

❑ **Read the investigation on page 306 of the textbook. Follow the directions, and answer the question.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read pages 307 and 308 of the textbook. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

Imagine walking along a mountain trail and finding rocks that resemble shark teeth. How could you explain the mysterious location of such rocks high above sea level? The next activity will aid you in solving this mystery.

Utilizing Technology: Pulling It All Together

Although designed for group work, this activity can be done on your own. Then, you would omit step 5 of the procedure and question 2 of "Evaluation". Instead of showing your presentation to other student groups for feedback, you can show it to family members or friends.

❑ **Read the activity on page 309 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

You have learned that with careful observation and interpretation, Nicolas Steno identified tonguestone as the fossil of shark teeth. Understanding how fossils form will help you to recognize fossil evidence. In the next activity you will begin the formation of a simulated fossil. You will use this fossil in Chapter 2 to interpret fossil evidence.

Try This Activity: Making a Fossil

❑ **Read the activity on page 309 of the textbook, and follow the directions.**

To prepare for Chapter 2, make a note of where you place the plaster mould and the object.

❑ Read page 310 of the textbook and "A Big Puzzle" on page 311. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

In the next investigation you are presented with a puzzle to solve. You will build a large stratigraphic sequence from a number of smaller sequences.

Investigation: Matching Rock Strata from Different Locations

Note: You will need to print the "Eight Fossil Cards" handout. Group work is not required for this activity.

❑ **Read the investigation on page 311 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read page 312 of the textbook. Be sure to carefully study Figure C1.25 and Figure C1.26.

You may have noticed that in Figure C1.25, the scale of the oldest era is compressed in comparison to the most recent era. Although the Precambrian Era has a span of almost 4000 million years, its length on the scale is not much more than the length of the Cenozoic Era. Yet the Cenozoic Era spans just 65 million years. The next activity shows what the Geological Time Scale would look like if the eras were shown proportionately.

Try This Activity: Hourglass of Time

❑ **Read the activity on page 313 of the textbook. Make a labelled sketch of the sand-filled graduated cylinder.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "1.3 Summary" on page 313 of the textbook. Then, complete "1.3 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

❑ Go to Assignment 1.3: Strange Rocks.

Lesson 1.4: Getting a Handle on Time

Looking at a distinctive feature of Earth's surface, such as the contrasting layers of land running along a riverbank, you may think that a series of unusual events led to its formation. Your thinking would be consistent with early theories of geological processes, which emphasized sudden, violent events. The modern theories of geological processes emphasize slow and weak processes that have occurred over time spans of millions of years. This lesson will provide you with a better understanding of these immensely long time spans.

❑ Read page 314 of the textbook.

In the next activity you may use your imagination to tell an eventful story behind the formation of some distinctive features of Alberta's landscape.

Try This Activity: Imagine This: Catastrophic Events

❑ **Read the activity on page 315 of the textbook. Follow the directions, and answer the questions.**

Note: **Check the answer to question 1 before continuing with question 2.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read pages 315 and 316 of the textbook, starting at "How Much Time?" Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

Rocks may seem so permanent to you. But over the long term they do undergo change. In the next activity you will see the nature of this change.

Utilizing Technology: How Do Rocks Undergo Change?

❑ **Read the activity on page 317 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "The Rock Cycle" and "The Rise of Uniformitarianism" on page 317 of the textbook.

The next investigation helps to clear up a mystery about contrasting layers along the banks of the Athabasca River.

Investigation: The Fort McMurray Unconformity

❑ **Read the investigation on pages 317 and 318 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "1.4 Summary" on page 318 of the textbook. Then, complete "1.4 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

❑ Go to Assignment 1.4: Getting a Handle on Time.

Lesson 1.5: Pinpointing Time

Modern geologists use the disintegration of radioactive elements to pinpoint the age of a rock. Lesson 1.5 provides insight into this method of dating rocks.

❑ Read pages 319 and 320 of the textbook to the beginning of the investigation.

What is the shape of a curve where a quantity diminishes by a factor of one-half in constant time periods? The next investigation provides you with the answer to this question.

Investigation: Constructing a Decay Curve

❑ **Read the investigation on pages 320 and 321 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read pages 321 to 324 of the textbook, starting at "The New Alchemy" and ending at "1.5 Summary". Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

❑ Read “1.5 Summary” on page 324 of the textbook. Then, complete “1.5 Questions”.

Check your answers with those in the “Practice Answers” in the online course.

Assignment

❑ Go to Assignment 1.5: Pinpointing Time.

Chapter 1 Summary

❑ Read “Chapter 1 Summary” on page 325 of the textbook. Remember to use one of the given options to make your own summary of the key concepts and important chapter terms.

❑ Turn to “Chapter 1 Review Questions” on pages 326 and 327 of the textbook. Do questions 2, 6, 10, 14, 18, 22, 26, 30, and 34. Then, you may do as many of the remaining questions as you feel are necessary to understand the concepts covered in this chapter.

Check your answers with those in the “Suggested Answers” in the online course.

Chapter 2: A Tropical Alberta

Oil is an important mineral resource for Alberta. The province’s Rocky Mountains form a treasured landmark. How did the region now called Alberta come to have these riches? You will have to go far back into deep time to answer this question.

In this chapter you will take a journey through Alberta to see what things were like in both the Paleozoic Era and the Mesozoic Era. On your journey, you will discover the geological processes that led to both the formation of oil and the Rocky Mountains.

❑ Turn to page 328 of the textbook, and read the Chapter 2 introduction.

In the previous chapter you made a fossil by embedding an object in plaster of Paris. In the next activity, you will return to the fossil.

Try This Activity: Interpreting Fossil Evidence

Be sure to keep any prying tools away from your body. Wear safety glasses.

If you are working with classmates who embedded an object in plaster of Paris, follow the steps of the procedure. Use only the minimum force necessary to break the mould. You may find a prying tool such as a long-handled, flat-bladed screwdriver to be helpful.

If you are working independently, complete steps 1 and 3 only. Then, make careful observations of your own impression. Based on your observations, try to imagine various objects embedded in plaster of Paris. These can include any small obscure part of a larger object,
an entire object, an object having no distinctive pattern on its surface,
a soft object, and so on.

When doing questions 1.a. and 1.b., you may just list some embedded objects that you think would answer the questions.

❑ Read the activity on page 329 of the textbook. Follow the directions, and answer the questions.

Check your answers with those in the "Suggested Answers" in the online course.

Lesson 2.1: The Cambrian Explosion

In this lesson, you will visit the best preserved and most important fossil formations in the world—the Burgess Shale in British Columbia.

❑ Read pages 330 and 331 of the textbook. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

You may have the impression that fossils provide a clear picture of organisms from the ancient past. However, the evidence left by fossils is sometimes very limited either in quality or in quantity. The more limited the evidence, the more interpretation plays a role in coming to conclusions about an organism's structure and lifestyle. Interpretations will vary. That's what the next investigation shows.

Investigation: Hypothetical Interpretations of Fossil Evidence

❑ **Read the investigation on pages 332 and 333 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read the remainder of page 333 of the textbook, as well as pages 334 and 335, ending at "2.1 Summary". Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

❑ Read "2.1 Summary" on page 335 of the textbook. Then, complete "2.1 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

❑ Go to Assignment 2.1: The Cambrian Explosion.

Lesson 2.2: A Billion-Dollar Reef

As you follow the search for petroleum and gas in this lesson, you will look back to the time when Alberta was submerged under warm, tropical sea water.

❑ Read pages 336 to 339 of the textbook up to the investigation. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

In the next investigation you can work as a geologist to use drill-core records to determine subsurface rock formations and to possibly find oil.

Investigation: Charting Patterns in Drill-Core Samples

❑ **Read the investigation on pages 339 and 340 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read pages 340 and 341 in the textbook, starting at “Seismic Waves” and ending at the activity “Seismograph Simulation”.

Besides using core samples to learn about subsurface rock formations, there’s another technology that can be used. In this technology, seismic shock waves are reflected off rock layers to reveal subsurface rock formations. The reflected shock waves must be detected by a seismogram in order to be analyzed. The next activity shows how a seismograph works.

Utilizing Technology: Seismograph Simulation

❑ Read the activity on page 341 of the textbook. Follow the directions, and answer the questions.

Check your answers with those in the “Suggested Answers” in the online course.

❑ Read “2.2 Summary” on page 341 of the textbook. Then, complete “2.2 Questions” on page 342.

Check your answers with those in the “Practice Answers” in the online course.

Assignment

❑ Go to Assignment 2.2: A Billion-Dollar Reef.

Lesson 2.3: Earthquakes

In this lesson, you pause in your journey through prehistoric events. It’s time to study modern earthquakes.

❑ Read pages 343 and 344 of the textbook. Answer the questions as you encounter them.

Check your answers with those in the “Practice Answers” in the online course.

In the next activity, you will study an animation of subduction, and you will discover how subduction is accompanied by earthquakes.

Utilizing Technology: Subduction

❑ Read the activity on page 345 of the textbook. Follow the directions, and answer the questions.

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "Types of Seismic Waves" on page 345 of the textbook.

Note that the two kinds of seismic waves—P-waves and S-waves—can be shown travelling down a spring. This is illustrated in the next investigation.

Investigation: Modelling Seismic Waves with a Spring

❑ Read the entire activity on page 346 of the textbook.

If you have access to a large-diameter spring and classmates, family members, or friends to work with, do Path 1. If you do not have access to a large-diameter spring and classmates, family members, or friends to work with, do Path 2.

Path 1

Be careful when using a stretched large-diameter spring. Don't release the end of a spring from a fully stretched state; the end of the recoiling spring may strike someone. And do not lie on the floor; a runaway spring could hit you in the face!

If you do not have classmates to work with, you may use family members or friends as partners for this investigation.

Tip: You may be able to have an additional partner use a camcorder to record the waves travelling along the large-diameter spring. Then, you can use individual video frames to look at the positions of the wave at various elapsed times.

❑ Follow the directions of the investigation, and answer the questions.
or this path you will watch a teacher and student demonstration of this activity.

Check your answers with those in the "Suggested Answers" in the online course.

Path 2

For this path you will watch a teacher and student demonstration of this activity.

- ❑ **View the segment "Modelling Seismic Waves with a Spring" in the "Multimedia Segments" in the online course. Record your observations when prompted.**
- ❑ **Answer questions 1 to 5 on page 346 of the textbook when prompted.**

For question 6, if you have no other teams to compare your results with, try to think about why there could be speed differences. Also think about possible improvements you could make. Then, base your answers on your ideas.

Check your answers with those in the "Suggested Answers" in the online course.

Read pages 347 to 349 of the textbook. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

In the next activity, you will use a computer simulation to find both the epicentre and the Richter magnitude of an earthquake.

Utilizing Technology: Earthquake Analysis

- ❑ **Read the activity on page 350 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

- ❑ Read the remainder of page 350 of the textbook, starting at "Tsunamis".
- ❑ Read "2.3 Summary" on page 351 of the textbook. Then, complete "2.3 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

- ❑ Go to Assignment 2.3: Earthquakes.

Lesson 2.4: Raising the Rockies

In this lesson, you will visit some of the significant geological events of the Paleozoic Era and the Mesozoic Era, including the formation of Alberta's Rocky Mountains. You will find that the underlying phenomenon associated with modern-day earthquakes—the movement of crustal plates—is behind the geological events you find in these ancient eras.

❑ Read page 352 of the textbook.

You cannot find the edges of Earth's crustal plates by looking at Earth's surface. However, the edges can by inferred by determining where certain major geological events have recently taken place. Finding these crustal-plate edges is the subject of the next activity.

Utilizing Technology: Mapping the Edges of Crustal Plates

❑ **Read the activity on pages 353 and 354 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read the remainder of page 354.

The pattern you uncovered in the most recent activity is strong evidence for the existence of crustal plates. The next activity provides even more support for both the existence of these plates and their mobility.

Utilizing Technology: Plate Tectonics

❑ **Read the activity on page 355 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read the remainder of page 355 of the textbook. Also read pages 356 to 359 up to "2.4 Summary". Answer the questions as you encounter them.

❑ Read "2.4 Summary" on page 359 of the textbook. Then, complete "2.4 Questions" on page 360.

Check your answers with those in the "Practice Answers" in the online course.

Assignment

❑ Go to Assignment 2.4: Raising the Rockies.

Chapter 2 Summary

❑ Read "Chapter 2 Summary" on page 360 of the textbook. Remember to use one of the given options to make your own summary of the key concepts and important chapter terms.

❑ Turn to "Chapter 2 Review Questions" on pages 361 to 365 of the textbook. Do questions 1, 5, 9, 13, 17, 21, 25, and 29. Then, you may do as many of the remaining questions as you feel are necessary to understand the concepts covered in this chapter.

Check your answers with those in the "Suggested Answers" in the online course.

Chapter 3: Changing Climates

In this chapter, you will continue your journey by starting from the beginning of the Cenozoic Era. On your trip you will discover the geological processes that led to the formation of the Cypress Hills, brought Big Rock to Okotoks, and gave the Rocky Mountains a more rugged, craggy face. Grasslands and mammals appear in the changing environment. The journey through the Cenozoic Era will not just involve travel in Alberta but **with** Alberta.

During this era, Alberta itself migrated north to its present position! With the migration, Alberta went through a dramatic climate change—from a tropical to a temperate climate. You will also see climate change as a global phenomenon that continues to the present. Projections show that climate change may now be affected by a new factor—the emergence of human civilizations.

❑ Turn to pages 366 and 367 of the textbook, and read the Chapter 3 introduction.

Glaciation dramatically affects the landscape. In the next activity, you will analyze a topographical map of Alberta to observe some effects of the last glaciation.

Try This Activity: Ice Flows!

Note: If you are not in a classroom, try answering the questions by yourself.

❑ Read the activity on page 367 of the textbook. Follow the directions, and answer the questions.

Check your answers with those in the "Suggested Answers" in the online course.

Lesson 3.1: The Great Cooling

In this lesson, you leave behind the age of dinosaurs. As well, you watch seas drain, climates become cooler, grasslands expand, and mammals flourish.

❑ Read pages 368 to 371 of the textbook. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

Temperatures in the distant past can be inferred from the number of fossils of animals, plants, or merely pollen grains found in sedimentary rock. But inferences can also be based on something far less obvious—the nuclear properties of oxygen atoms found in sedimentary rock at the ocean's bottom. You will find more information in the next investigation.

Investigation: A Record in Deep-Ocean Sediments

❑ **Read the investigation on pages 372 and 373 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "3.1 Summary" on page 374 of the textbook. Then, complete "3.1 Questions".

Check your answers with those in the "Suggested Answers" in the online course.

Assignment

❑ Go to Assignment 3.1: The Great Cooling.

Lesson 3.2: The Icy Epoch

This lesson brings you to an epoch when snow accumulations begin major ice ages. Advancing glaciers scour the continents and retreating glaciers litter the landscape with the debris of destruction. Giant mammoths and sabre-toothed cats populate Alberta. Sand dunes and mountain glaciers from this epoch remain to this day.

❑ Read pages 375 and 376 of the textbook.

In the next activity, you will use a computer animation to not only get a sense of a continental ice sheet, but to discover its amazingly fluid nature.

Utilizing Technology: Antarctica: A Flying Tour of the Frozen Continent

❑ **Read the activity on page 377 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read page 377 of the textbook, starting with "Are We in an Ice Age Right Now?"

Ocean sediments and sedimentary rock layers store information about ancient times. Information is also recorded in naturally occurring ice sheets. In the next investigation you will use a spreadsheet to analyze data from an ice core. The ice core was extracted by drilling into the Antarctic ice sheet.

Investigation: A Record in the Ice

❑ **Read the investigation on pages 378 and 379 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read pages 379 and 380 of the textbook, starting at "The Wisconsin Glaciation" and ending at the investigation. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

The water that you use as running water in your home may have been in "cold storage" for hundreds of years before it came to you. Find out more about the source of your drinking water in the next investigation.

Investigation: Fresh Water

❑ **Read the investigation on pages 380 and 381 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "3.2 Summary" on page 381 of the textbook. Then, complete "3.2 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

❑ Go to Assignment 3.2: The Icy Epoch.

Lesson 3.3: Explaining and Predicting Climate Change

This lesson brings you to the final part of Alberta's geological story. At this time, climate change uncovers a landscape reshaped by geological events.

❑ Read pages 382 to 387 in the textbook, ending at the investigation. Answer the questions as you encounter them.

Check your answers with those in the "Practice Answers" in the online course.

In the next investigation, you will go back to the Vostok ice-core data that you analyzed earlier. You will look for any correlation between the average temperature and atmospheric carbon dioxide concentrations over the last 160 000 years.

Investigation: Return to Vostok

❑ **Read the investigation on page 387 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read page 388 of the textbook.

An oceanic circulation system known as the North Atlantic Conveyor transports warm water north from the tropics to Canada and other areas. In the next activity you will explore what factors could interfere with the transportation of thermal energy to Canada.

Utilizing Technology: The North Atlantic Conveyor

❑ **Read the investigation on page 389 of the textbook. Follow the directions, and answer the questions.**

Check your answers with those in the "Suggested Answers" in the online course.

❑ Read "3.3 Summary" on page 389 of the textbook. Then, complete"3.3 Questions".

Check your answers with those in the "Practice Answers" in the online course.

Assignment

- ❑ Go to Assignment 3.3: Explaining and Predicting Climate Change.

Chapter 3 Summary

- ❑ Read "Chapter 3 Summary" on page 390 of the textbook. Remember to use one of the given options to make your own summary of the key concepts and important chapter terms.

- ❑ Turn to "Chapter 3 Review Questions" on pages 391 to 393 of the textbook. Do questions 3, 7, 11, 15, 19, 23, 27, and 31 to 41. Then, you may do as many of the remaining questions as you feel are necessary to understand the concepts covered in this chapter.

Check your answers with those in the "Suggested Answers" in the online course.

Unit C Conclusion

You've now come to the end of the journey that took you through Alberta over billions of years. On the way, you discovered the geological processes that led to both the features of Alberta's landscape and its natural resources.

- ❑ Read the Unit C conclusion, including "Career Profile: Petroleum Engineer," on page 394 of the textbook.

- ❑ Turn to "Unit C Review Questions" on pages 395 to 401 of the textbook. Do questions 1, 3 to 15, 18, and 21 to 23. Then, you may do as many of the remaining questions as you feel are necessary to understand the concepts covered in this unit.

Check your answers with those in the "Suggested Answers" in the online course.

Assignment

- ❑ Go to the Unit C Review Assignment, and answer all the review questions. Be sure to submit your completed assignment.

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