Chapter 2: Utah’s Geologic History

Setting the Stage

For \_\_\_\_\_\_\_\_\_\_ of years Utah’s land was covered by warm, \_\_\_\_\_\_\_\_ seas.  The seas came and went \_\_\_\_ and \_\_\_\_ again.  During this time our \_\_\_\_, gas, and \_\_\_\_\_ were being formed.

*There are four geologic eras.*

*-Precambrian Era: \_\_% of the earth’s time period*

*-\_\_\_\_\_\_\_\_\_\_\_ Era: shallow seas cover Utah*

*-Mesozoic Era: \_\_\_\_\_\_\_\_\_\_ and primitive mammals appear*

*-Cenozoic Era: \_\_\_\_\_\_\_\_ appear*

Shaping the Land

\_\_\_\_\_\_\_\_\_\_\_\_ are scientists who learn about the history of the earth by studying \_\_\_\_\_\_ and land \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  They try to determine how \_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ features of the land were \_\_\_\_\_\_\_.  Wind, \_\_\_\_\_\_\_, earthquakes, \_\_\_\_\_\_\_, and even cold and \_\_\_\_\_ have worked together over time to cause \_\_\_\_\_\_\_\_\_\_\_\_.

Geologic Eras

\_\_\_\_: a major division of time

The earliest known era is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ era.  This is when the \_\_\_\_\_\_\_\_ rocks of the \_\_\_\_\_\_\_\_\_\_\_ were formed.

The Paleozoic era means “\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_”.  This era produced the beginnings of the \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_ we know as coal, oil, and natural gas.  They were formed from the remains of decaying \_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ life.

The Mesozoic era is the time of the \_\_\_\_\_\_\_\_\_\_\_\_.  The \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ were beginning to take shape during this era.

The Cenozoic era is the last one.  This is when the \_\_\_ \_\_\_\_ took place and large mammals and \_\_\_\_\_\_\_\_\_ appeared.

Ancient Seas and Sandstorms

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ made of loose sands, shells, and pebbles drifted to the bottom of the seas that used to cover Utah.  Over time, the sediments were forced together by \_\_\_\_\_ and pressure into hard rock.  These hardened into layers of \_\_\_\_\_\_\_\_\_\_\_\_\_ and sandstone rock.

Eventually the land began to slowly \_\_\_\_ and the shallow seas washed away or \_\_\_\_\_\_\_\_\_\_.

*Utah’s oldest animal fossils are \_\_\_\_\_\_\_\_\_\_\_\_.*

Dinosaurs

The different rock \_\_\_\_\_\_\_\_\_\_\_ where many of Utah’s dinosaur bones have been uncovered show us what the land was like at that time.

Some of the world’s most complete dinosaur \_\_\_\_\_\_\_\_\_\_\_\_\_ have been found in Utah.

*The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a carnivore recently discovered*

*in a remote region north of \_\_\_\_\_\_\_ National Park.*

*It had a claw 15 inches long and was the*

*size of a large \_\_\_\_\_\_\_ bear.*

*Question: Where in Utah have dinosaur fossils been found?*

*Question: What are two herbivore dinosaurs found in Utah?  What are two carnivore dinosaurs found in Utah?*

Natural Forces Shape Utah’s Mountains and Plateaus

The Rocky Mountains were formed by the earth’s surface being \_\_\_\_\_\_\_\_\_\_\_ together from faraway \_\_\_\_\_\_\_\_\_\_\_\_ of both the Pacific and \_\_\_\_\_\_\_\_\_\_\_ Ocean floors.  The \_\_\_\_\_\_\_ caused flat areas to buckle and rise in huge folds or \_\_\_\_\_\_\_\_\_\_.

Other parts of Utah’s land were squeezed up into high \_\_\_\_\_\_\_\_\_\_\_.  Over time, water and wind caused \_\_\_\_\_\_\_\_\_\_\_ of the land and cut beautiful cliffs and \_\_\_\_\_\_\_\_\_\_\_ through the rock.

\_\_\_\_\_\_\_\_\_\_\_, or cracks, formed at weak spots in the earth’s crust.

*Question: What major universities are located on a fault line?*

*Question: Why might it be a problem that many of our hospitals are on a fault line?*

In some areas, underground \_\_\_\_\_\_\_\_\_\_\_\_\_ activity lifted large pieces of the earth’s crust.

For hundreds of years Utah was covered by active \_\_\_\_\_\_\_\_\_\_\_\_ that spread layers of ash and \_\_\_\_\_\_\_\_ in many directions.  Some of Utah’s \_\_\_\_\_\_\_\_ and minerals were deposited by volcanic activity.  This is how many minerals came to be in the \_\_\_\_\_\_\_\_\_\_\_\_ Utah Copper mine.

Utah’s Rock and Mineral Resources

Utah is rich in \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_.

Utah has enough \_\_\_\_\_ to satisfy the world’s needs for a \_\_\_\_\_\_\_\_\_\_ years.   Most of it is used for water softeners and icy \_\_\_\_\_\_\_.  Salt for \_\_\_\_\_\_\_\_ comes from other states.

Utah’s geologic history has given us a tremendous supply of \_\_\_\_\_\_\_\_\_\_\_ stones such as sandstone, \_\_\_\_\_\_\_\_\_\_\_, quartz, and marble.

*Question: What are some environmental issues associated with mining and refining of minerals?  What are some ways these problems can be solved?*

*Utah has large \_\_\_\_\_ fields that provide \_\_\_\_\_\_\_\_\_\_\_\_\_\_.*

Ice Age

The last major shaping of Utah took place \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ years ago during the last of four Ice Ages.  This Ice Age caused a huge sheet of \_\_\_\_ to cover much of North America.

Thousands of small glacial \_\_\_\_\_\_ can still be seen in the higher \_\_\_\_\_\_\_\_ of the mountains.

When the glaciers melted, they left \_\_\_\_\_\_\_\_\_ that filled with water from melting snow.  These mountain \_\_\_\_\_\_\_ are important for our water today.

Lake Bonneville was Utah’s \_\_\_\_ \_\_\_\_ lake.  It was a \_\_\_\_\_\_\_\_\_\_\_\_\_ lake that spread over the flat land of the Great Basin and \_\_\_\_\_\_\_\_\_\_\_ much of Utah.

The major \_\_\_\_\_\_\_\_\_ of Lake Bonneville are the Great Salt Lake, \_\_\_\_\_\_\_ \_\_\_\_\_\_, and Sevier Lake.

Now-extinct \_\_\_\_\_\_\_\_\_\_\_\_\_\_, ground sloths, ancient \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cats, giant \_\_\_\_\_\_\_\_, and more lived here.  Bones of some of these animals have been found with \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ in them.  This shows us that early \_\_\_\_\_\_\_\_\_\_ also lived at that time.

Natural Forces Affect the Environment Today

\_\_\_\_\_\_\_\_, water, ice, \_\_\_\_\_, and cold are the main agents of \_\_\_\_\_\_\_\_\_\_\_.

Mud slides, \_\_\_\_\_\_ slides, floods, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are all reminders that the earth is still changing.  Mud slides and floods currently cause the most damage in Utah.

Utah has over \_\_\_\_ small earthquakes a year.