**Chapter 2 Utah’s Geologic History… how was Utah formed?**

Geologic Eras

What are the 4 Eras we should remember called?\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_

* Precambrian Era: 85% of the earths \_\_\_\_\_\_\_\_\_\_\_\_ billion years were in the Precambrian Era
	+ The Precambrian era was the \_\_\_\_\_\_\_\_\_\_\_\_of the eras.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_era means “ancient life”.
	+ Fossil fuels such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_were starting to form.
	+ Fossil fuels are formed by the remains of decaying \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The Mesozoic era means “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”.
	+ In the Mesozoic era \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_roamed the earth.
	+ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_were also formed in the Mesozoic era
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_era means “recent life”.
	+ This is the era that began to shape the earth’s surface to the point where we recognize it today
	+ Several periods called \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ helped change the look of the land

Sedimentary Rock

* Sediment: Loose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that are carried by water and drift to the bottom of bodies of water
* Sedimentary Rock: Rock formed when sediment is under \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ forcing it together
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pressed sediment together to form Utah’s sedimentary rock
	+ Some layers of sedimentary rock in Utah are as thick as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Utah’s national parks are located in the \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ Region and formed mostly of sedimentary rock

Dinosaurs

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: where many dinosaur bones have been uncovered in Utah
	+ World’s most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dinosaur skeleton found in Utah!
	+ \_\_\_\_\_\_\_\_ complete dinosaurs found here, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ partial dinosaurs too
	+ Can see digs happening at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ near Vernal, Cleveland-Lloyd Dinosaur Quarry in Emery County, and in Moab
	+ Dinosaur remains turn into fossil fuels: \_\_\_\_\_\_\_\_, natural gas, \_\_\_\_\_\_\_\_\_\_
	+ Name dinosaurs that can be found in Utah: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Formation of Mountains

* Rocky Mountains
	+ Formed by pressure on the North American tectonic plate from the Pacific and Atlantic Ocean floors, causing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		- Earthquakes caused buckling, folding, and cracks (called \_\_\_\_\_\_\_\_\_\_\_\_\_\_) along North America
	+ Utah was raised up into peaks and cliffs
	+ Mountain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was washed into the valleys, leaving the rocky core visible
* How were Utah’s Mountains Formed?
	+ The Rocky Mountains (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_ Mtns) were formed from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mountain Ranges in Utah (La Sal,\_\_\_\_\_\_\_\_\_\_\_\_\_\_Mtns, Abajo, etc) were formed from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Volcanoes

* Utah was covered with active volcanoes, but all of them are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ today
* They left behind craters and a few \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Hot springs are formed when the water is heated by rocks beneath the surface
* Volcanoes formed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the Great Basin and Colorado Plateau

Colorado Plateau

* + This area was raised into a high, flat area during the buckling and folding
	+ Water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(wearing away) caused the sedimentary rock to form cliffs and canyons
	+ Some amounts of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ activity also formed small mountain ranges in this region

Rocks and Minerals

* Utah has many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: oil, natural gas, and coal
* Utah also has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, gold, and silver
* Utah has enough \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to satisfy the world’s needs for a thousand years
* Sand and gravel were also left behind by Lake Bonneville and are used to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Building stones such as quartz, sandstone, limestone, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and marble

Ice Age

* Last major shaping of Utah took place
* A huge sheet of ice covered much of North America, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ formed over the Rocky Mountains
	+ Some glaciers are still found at high elevations
	+ Many glacial \_\_\_\_\_\_\_\_\_\_\_\_\_\_ were formed
	+ Canyons and basins were created as the glaciers moved along the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		- When the glaciers melted, they filled basins with water
			* These \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ provide Utah with important water sources
	+ Ice Age Animals
		- Deer, chipmunks, rabbits, gophers mice
		- Mammoths, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ancient bison, musk ox, cave bears, camels, saber-toothed tigers

Lake Bonneville

* Ice Age temperatures heated up and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the ice
	+ The water formed a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that spread over much of Utah
	+ At its largest, it covered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ square miles and was nearly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ feet above the current Great Salt Lake
* Lake Bonneville washed against the sides of the mountains, forming \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or terraces, that were flat places people live on today
	+ Warming caused the lake to shrink and each change left a new bench on the mountain side
* 8,000 years ago, the lake was lowered when water broke through Red Rock Pass and flowed to the ocean
* Mountain streams flowing into the lake deposited sediment, forming the best soil for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the state and large gravel deposits
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Utah Lake, and Sevier Lake are left behind from this
	+ The Great Salt Lake is Utah’s largest body of water
		- It is found in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-
		- It is very shallow
		- Rivers flow into the lake, with minerals, but no \_\_\_\_\_\_\_\_\_\_\_\_\_ flow out —making it very salty
			* It is saltier than the ocean, and too salty for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Natural Forces Shaping Utah Today

* Wind, water, ice, heat, and cold shape the land today through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, rock slides, floods, and earthquakes change things

Earthquakes in Utah today:

* Over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ earthquakes occur in Utah each year.
* Most of Utah’s Major cities are built on a giant \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ called the Wasatch front
* What is liquification?
	+ Liquification is when supersaturated \_\_\_\_\_\_\_\_\_\_\_\_\_\_ soil acts like a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in an intense earthquake.
* Where will it happen in Utah?
	+ In the \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_… Sandy, South Jordan, Salt Lake City etc
* What will happen to that place when it occurs?
	+ Large objects will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* What could happen to Alpine in an earthquake?
	+ Mud slides and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* When is the only time you should use the phone after an earthquake?
	+ Incase of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ injury (life and \_\_\_\_\_\_\_\_\_\_\_\_\_)
* Why is this the only time you should make a phone call after an earthquake?
	+ Phone lines will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and important calls will\_\_\_\_\_\_\_\_\_\_\_\_\_\_ get through in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.