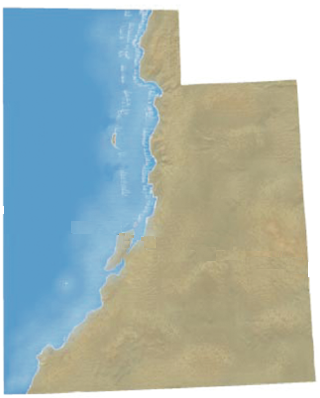
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| **Grade 5** | **Lesson:**  **Landforms Part 6** | | Reference to English Interconnections Lesson:  It Takes Time pg. 23 and Earth’s Past pg. 27 |
| **Science Standard(s): Standard 2 Objective 3** | | | |
| **Content Objective(s):** | | **Language Objective(s):** | |
| Students will be able to create a personal timeline and a timeline of geological events by ordering important Utah events and pictures with a partner.  ***I can create a personal timeline and a geological timeline by ordering important Utah events and pictures with a partner.***  我可以制作一个个人的时间线，也可以和一个同伴一起制作一个地质学的时间线，包括排列犹他州的重要事件和图片。 | | Students will be able to describe events in their personal and geological timelines, and explain how the world would look without weathering, erosion and uplift by participating in an activity with a partner.  ***I can describe events in my personal and geological timeline, and explain how the world would look without weather, erosion and uplift by participating in a language activity with a partner.***  我可以描述我的个人时间线和地质时间线，并且在一个语言活动中，和一个同伴一起解释世界如果没有风化、侵蚀和隆起会怎么样。 | |
| **Essential Questions:**  *How is the Earth’s surface changing over time?*  *地球的表面是如何随着时间的变化而改变的？* | | **Required Academic Vocabulary for Word Wall:**  **Listen:** dinosaurs, coal, swamp, lake, ocean, winds, plains, coral reefs, fossils, Continental Plate, collision, sediments, depression, oil shales, basins, minerals, glaciers, mountains, rivers, range, erosion, deposition, weathering, uplift  恐龙，煤炭，沼泽，湖，海，风，平原，珊瑚礁，化石，大陆板块，碰撞，沉积物(sediments)，洼地，油页岩，盆地，矿物，冰川，山脉，河流，山脉(range)，侵蚀，沉积物(deposition)，风化，隆起  **Speak:** erosion, deposition, weathering, uplift, dinosaurs, coal, lakes, ocean, winds, glaciers, mountains, rivers  侵蚀，沉积物(deposition)，风化，隆起，恐龙，煤炭，湖，海，风，冰川，山脉，河流  **Read:** dinosaurs, coal, swamp, lake, ocean, winds, plains, coral reefs, fossils, Continental Plate, collision, sediments, depression, oil shales, basins, minerals, glaciers, mountains, rivers, range  恐龙，煤炭，沼泽，湖，海，风，平原，珊瑚礁，化石，大陆板块，碰撞，沉积物(sediments)，洼地，油页岩，盆地，矿物，冰川，山脉，河流，山脉(range)  **Write:**  **Sentence Frames:**  During my infancy I \_\_\_\_\_\_\_\_\_\_\_\_\_ and then I **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**  在我婴儿期的时候，我\_\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_\_\_。  During my early childhood I \_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_.  在我幼儿期的时候，我\_\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_\_\_。  During my lower elementary years I \_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_.  在我小学低年级的时候，我\_\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_\_\_。  During my upper elementary years I \_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_.  在我小学高年级的时候，我\_\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_\_\_。  What is one thing that happened to Utah during this Epoch/Era?  在这一个纪元犹他州发生了什么？  During the \_\_\_\_\_ Epoch/Era in Utah, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  在\_\_\_\_\_\_\_\_\_\_\_\_纪元，犹他州\_\_\_\_\_\_\_\_\_\_\_\_\_。 | |
| **Materials:**   * Personal timeline- copies for all students * Geological timeline- one copy for teacher, copies for each partnership * Utah description cards- one copy for teacher, copies for each partnership cut out and in ziplock bags * Large Utah picture cards- one copy for teacher * Small Utah picture cards- one copy for teacher, copies for each partnership cut out and in ziplock bags * Ziplock bags * Additional blank white paper- two sheets for each partnership OR a large chart paper for each partnership * Tape and/or glue | | **Additional Lesson Vocabulary:**  Infancy, childhood, lower, upper, elementary  婴儿，幼儿，低年级，高年级，小学 | |
| **Lesson:** | | **Instructional Time: 65 Minutes (lesson can be split into two lessons)** | |
| **Opening:** **(4 minutes)**   * Post the large Utah picture number 1. * **T: “Do you recognize this picture?”** * 你们知道这幅图里是什么吗？ * *S: It looks like Utah!* * 看起来像犹他州！   **T: “Does it look like Utah does now?”**  它看起来像今天的犹他州吗？  *S: No!*  不！  **T: “No. This is Utah today.”**  对，这不是今天的犹他州。   * Post the large Utah picture number 10.   **T: “Weathering, erosion, deposition and uplift caused these changes to Utah over millions and millions of years. Let’s look at our learning objective for the day.”**  经过上百万年，风化、侵蚀、沉积和隆起造成了犹他州现在的改变。让我们看看今天的学校目标。   * Point to the student objective‘*I can create a personal timeline and a geological timeline by ordering important Utah events and pictures with a partner’* 我可以制作一个个人的时间线，也可以和一个同伴一起制作一个地质学的时间线，包括排列犹他州的重要事件和图片。   **T: “Partner 1, when I say “go” you will ask your partner, ‘What are we going to do today?’”** 我说开始的时候，1号同学问你的同伴‘我们今天要学什么？’Write the question on the board. **“Partner 1, you will read the objective on the board.”** 2号同学，你就读白板上的学习目标。Point to the objective. **“Then Partner 2, you will ask, ‘What is one thing we will learn today and how will we know we learned it?’”** 然后2号同学，你来问‘我们今天要学什么，怎么知道我们学会了？’Write the question on the board. **“Partner 1 will respond to the question by explaining one thing the class will learn today and how they will know they learned it.”** 1号同学说出一个我们今天学的东西，并且说出怎么知道我们学会了。   * Give the class 1-2 minutes.   *S1:* What are we going to do today?  我们今天要学什么？  *S2: We are going to create a personal timeline and a geological timeline.*  我们要制作一个个人的时间线和一个地质时间线。  *S2: What is one thing we will learn today and how will we know we learned it?*  我们要今天学什么，怎么知道我们学会了？  *S1: We are going to learn about events in the geological timeline of Utah. We will know we learned it by finishing the timelines with a partner.*  我们今天要学犹他州地质时间线中的事件。我们要通过和同伴完成时间线来学习。  **Introduction to New Material (Direct Instruction): (3 minutes)**  **T: “Before we get started on a timeline of geological events in Utah, we are going to learn more about what a timeline is, and how it is used.”**  在我们开始制作犹他州地质时间线前，先来看一看什么是时间线，以及如何使用时间线。   * Show the timeline vocabulary card.   **T: “A timeline is a representation of events within a particular period of time arranged in order of when they happened. Let’s look at an example of a timeline.”**  时间线是在特定的时间段里一连串事件的表现，这些事件是按照他们发生的时间排列的。让我们来看一个时间线的例子。   * Show the sample of a geological timeline on the board.   **T: “We’ll look at this timeline in detail in a few minutes, but let’s notice a couple of things. This timeline has a title telling us the type of events that are listed in order. This timeline is a list of geological events in the history or the world. I want you to talk with your partners about other things you might notice about this timeline. Make some observations. Go.”**  我们马上要仔细的看一下这个时间线，但是我们先说说要注意些什么。这个时间线的标题告诉我们这个时间线列举的是什么类型的事件。这个时间线是关于历史上全球的地质事件。我要你和你的同伴讨论一下你们还注意到了什么。观察一下。开始。  *S:**There are subtitles, or smaller titles. A timeline is really long. A timeline is measured out and exact. The periods of time are labeled.* (Answers will vary)  还有副标题，小标题。时间线很长。时间线是精确测量出来的。时间都被标出来了。   * Ask a few students to share out.   **T: “A lot of you noticed that this timeline has some subtitles here labeling chunks of time. A lot of you also noticed that a timeline can be very long!”**  很多同学都看到了时间线有一些副标题来标出一段段的时间。还有很多同学发现时间线可以很长！   * Post the template for the personal timeline.   **T: “This is a template for a personal timeline. A personal timeline is a timeline about your own life. This one is not yet filled out, but just looking at the template can you see some things this timeline has in common with the last timeline? Talk with your partners. Go.”**  这是一个个人时间线的模板。个人时间线是关于你自己的。这个还没填好，但是先看看这个，你能看出这个时间线和上一个有什么共同点吗？和你的同伴讨论。开始。  *S: It has a title labeling the type of timeline and events listed. It has subtitles labeling chunks of time.* (Answers will vary)  都有一个标题标出时间线的类型。都有附标题标出时间段。   * Ask a few students to share out.   **T: “Yes, this one has a title as well. It is a personal timeline of your life. There are also subtitles here designed to help you order important events in your lives according to the chunks of time. We are going to make a personal timeline before we make our geological timelines. This will be a quick activity to prepare us to learn more about timelines.”**  是的，这一个也有标题。这是关于你的一生的时间线。也有副标题，副标题是用来帮助你按照时间段来排列你生命中的重要事件的。在做地质时间先之前，我们先做一个个人时间线。等下有个小活动来帮助我们来更多的了解时间线。  **Guided Practice: (8 minutes)**   * Place the template for the personal timeline under the document camera.   **T: “You all are going to help me fill out my personal timeline. When you do yours, you will do it independently and you will use real events in your life. Right now, we’re going to practice together so we might have to make up some events in my life. We’re going to look at the different subtitles with the chunks of time. The first part says infancy and has two different events listed under that title. I know that infancy means when I was a baby. I need to think of two different important events that happened when I was a baby. Now I don’t remember much about when I was a baby, but I can probably make a couple of good guesses of things I did as a baby. Maybe I learned to do something, tried something new, or went to a new place. Talk with your partners and come up with some ideas I could write under this subtitle. Go.”**  你们要一起来帮我完成我的个人时间线。你做自己的时间线时，你将会独立完成，并且用你生活中的真实事件。现在，我们要一起练习，所以我们可能要编关于我生活的一些事件。我们将要看一看不同的时间段的小标题。第一部分是婴儿期，下面有两个事件。我知道婴儿期就是说我还是个小宝宝的时候。我需要想两件在我还是小宝宝时发生的事。我现在婴儿期的事情都不记得了，但是我大概可以猜一猜发生了什么。可能我学做了什么，尝试了一些新鲜事物，或者去过一个新地方。和你的同伴讨论一下，想想这个标题下面我可以写些什么。开始。  Students talk with their partners about different life events in infancy.   * Have a couple of students share their ideas.   **T: “Great ideas! I am going to write two of your ideas down, and I’m going to be sure to write them down in order. I first write the event that happened first, when I was youngest, and then I write down the event that follows. I’m going to write down ‘I went for a walk in my stroller’ and ‘I learned to walk’. I first went for a walk in my stroller before I learned to walk, so I will write it first.“** Write the two events on the personal timeline. **“Now I want you to think of two events in your life that happened in your infancy or when you were babies that you could write on your own personal timelines. I will give you 30 seconds to think silently.”**  好多好主意！我要把你们说的其中两个写下来，我要确保按顺序下。我先写先发生的事，我最小的时候，然后写后面发生的事。我要写下‘我在我的婴儿车里学走路’和‘我学会了走路’。我先用婴儿车然后才学会走路，所以我现在用婴儿车。Write the two events on the personal timeline. 现在，我要你们想两件你们婴儿期时发生的事，等下可以写在你们的个人时间线上。我给你们30秒，悄悄地想。   * Give students 30 seconds to think.   **T: “Okay, hopefully you could all come up with two different events in your life that happened in your infancy, or when you were babies. You are going to share your ideas with your partners using this sentence frame, ‘During my infancy I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.’ “** Write sentence frame on the board. **“Partner 1 will go first, and then partner 2. Go!”**  好了，希望大家都已经想好了你婴儿期，或者当你还是小宝宝的时候发生的两件事了。你们要和同伴分享你们的想法，用这个句型‘婴儿期时，我\_\_\_\_\_\_\_\_\_然后我\_\_\_\_\_\_\_\_\_\_。’Write sentence frame on the board. 1号同学先说，然后2号。开始！  Students use sentence frames with their partners.  **T: “Great! Now let’s move to the next section of our timelines. Our next subtitle says early childhood. There is space for two events in your early childhood. This is about from the ages of 2-5. Let’s think of a couple of events that could have happened in my life between these years. Talk with your partners and come up with some ideas I could write under this subtitle. Go.”**  太好了！现在我们来看下一个部分。下一个标题写着幼儿期。在幼儿期也有两个事件的位置。这个时期是2-5岁的时候。我们来想想我们生活中这段时间会发生什么呢。和你的同伴讨论一下，想想这里我可以写什么。开始。  Students talk with their partners about different life events in their early childhood.   * Have a couple of students share their ideas.   **T: “Great ideas! I am going to write two of your ideas down, and I’m going to be sure to write them down in order. I first write the event that happened first, when I was youngest, and then I write down the event that follows. I’m going to write down ‘I went to the zoo’ and ‘I started preschool’. I first went to the zoo before I started preschool, so I will write it first.“** Write the two events on the personal timeline. **“Now I want you to think of two events in your life that happened in your early childhood, or when you were between the ages of 2-5, that you could write on your own personal timelines. I will give you 30 seconds to think silently.”**  很多很棒的想法！我要把其中两个写下来，还要确保按顺序写。我先写我最小的时候的，最先发生的，然后写后面发生的。我要写下‘我去了动物园’和‘我开始上幼儿园’。在上幼儿园前我去了动物园，所以我这样写。Write the two events on the personal timeline. 现在，我要你们想想你们幼儿期，或者说2-5岁的时候，有什么可以写在你们的个人时间线上的。我给你们30秒来静静的想。   * Give students 30 seconds to think.   **T: “Okay, hopefully you could all come up with two different events in your life that happened in your early childhood, or when you were ages 2-5. You are going to share your ideas with your partners using this sentence frame, ‘During my early childhood I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.’ “** Write sentence frame on the board. **“Partner 2 will go first, and then partner 1. Go!”**  好了，希望大家都已经想好了你幼儿期，或者说2-5岁时候发生的两件事了。你们要和同伴分享你们的想法，用这个句型‘幼儿期时，我\_\_\_\_\_\_\_\_\_然后我\_\_\_\_\_\_\_\_\_\_。’Write sentence frame on the board. 2号同学先说，然后1号。开始！  Students use sentence frames with their partners.  **T: “Great! Now let’s move to the next section of our timelines. Our next subtitle says lower elementary. There is space for two events in lower elementary. This is about from first grade through third grade, ages 6-9. Let’s think of a couple of events that could have happened in my life between these years. Talk with your partners and come up with some ideas I could write under this subtitle. Go.”**  太好了！现在我们来看下一个部分。下一个标题写着小学低年级。在小学低年级也有两个事件的位置。这个时期是从1年级到3年级，大概6到9岁。我们来想想我们生活中这段时间会发生什么呢。和你的同伴讨论一下，想想这里我可以写什么。开始。  Students talk with their partners about different life events in their early childhood.   * Have a couple of students share their ideas.   **T: “Great ideas! I am going to write two of your ideas down, and I’m going to be sure to write them down in order. I first write the event that happened first, when I was youngest, and then I write down the event that follows. I’m going to write down ‘I lost my first tooth’ and ‘I started reading chapter books’. I lost my first tooth before I started reading chapter books, so I will write it first.“** Write the two events on the personal timeline. **“Now I want you to think of two events in your life that happened in your lower elementary years, or when you were in first, second or third grade, that you could write on your own personal timelines. I will give you 30 seconds to think silently.”**  很多很棒的想法！我要把其中两个写下来，还要确保按顺序写。我先写我最小的时候的，最先发生的，然后写后面发生的。我要写下‘我掉了第一颗牙’和‘我开始读书了’。在开始读书前我掉了第一颗牙，所以我这样写。Write the two events on the personal timeline. 现在，我要你们想想你们在小学低年级时，或者说你在1年级到3年级时，有什么可以写在你们的个人时间线上的。我给你们30秒来静静的想。   * Give students 30 seconds to think.   **T: “Okay, hopefully you could all come up with two different events in your life that happened in your lower elementary years, or when you were in first through third grade. You are going to share your ideas with your partners using this sentence frame, ‘During my lower elementary years I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.’ “** Write sentence frame on the board. **“Partner 1 will go first, and then partner 2. Go!”**  好了，希望大家都已经想好了你小学低年级时，或者说你在1年级到3年级时发生的两件事了。你们要和同伴分享你们的想法，用这个句型‘在小学低年级时，我\_\_\_\_\_\_\_\_\_然后我\_\_\_\_\_\_\_\_\_\_。’Write sentence frame on the board. 1号同学先说，然后2号。开始！  Students use sentence frames with their partners.  **T: “Great! Now let’s move to the last section of our timelines. Our next subtitle says upper elementary. There is space for two events in upper elementary. This is about from fourth grade to sixth grade, ages 10-13. Let’s think of a couple of events that could have happened in my life between these years. Talk with your partners and come up with some ideas I could write under this subtitle. Go.”**  太好了！现在我们来看下一个部分。下一个标题写着小学高年级。在小学高年级也有两个事件的位置。这个时期是从4年级到6年级，大概10到13岁。我们来想想我们生活中这段时间会发生什么呢。和你的同伴讨论一下，想想这里我可以写什么。开始。  Students talk with their partners about different life events in their early childhood.   * Have a couple of students share their ideas.   **T: “Great ideas! I am going to write two of your ideas down, and I’m going to be sure to write them down in order. I first write the event that happened first, when I was youngest, and then I write down the event that follows. I’m going to write down ‘I participated in the 4th grade play.’ and ‘I ran a mile in P.E.’. I participated in the play before I ran a mile in P.E., so I will write it first.“** Write the two events on the personal timeline. **“Now I want you to think of two events in your life that happened in your upper elementary years, or when you were in fourth or fifth grade, that you could write on your own personal timelines. I will give you 30 seconds to think silently.”**  很多很棒的想法！我要把其中两个写下来，还要确保按顺序写。我先写我最小的时候的，最先发生的，然后写后面发生的。我要写下‘我参加了4年级的表演’和‘我在体育课跑了1英里’。在跑1英里前我参加了4年级的表演，所以我这样写。Write the two events on the personal timeline. 现在，我要你们想想你们在小学高年级时，或者说你在4年级到6年级时，有什么可以写在你们的个人时间线上的。我给你们30秒来静静的想。   * Give students 30 seconds to think.   **T: “Okay, hopefully you could all come up with two different events in your life that happened in your upper elementary years, or when you were in fourth or fifth grade. You are going to share your ideas with your partners using this sentence frame, ‘During my upper elementary years I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.’ “** Write sentence frame on the board. **“Partner 1 will go first, and then partner 2. Go!”**  好了，希望大家都已经想好了你小学高年级时，或者说你在4年级到6年级时发生的两件事了。你们要和同伴分享你们的想法，用这个句型‘在小学高年级时，我\_\_\_\_\_\_\_\_\_然后我\_\_\_\_\_\_\_\_\_\_。’Write sentence frame on the board. 1号同学先说，然后2号。开始！  Students use sentence frames with their partners.  **T: “Excellent! Thank you for your help in completing my personal timeline. Now you all are going to create your own.”**  太好了！感谢大家帮我完成我的个人时间线。现在你们来做你们自己的。  **Independent Practice:(8 minutes)**   * Pass out the Personal Timelines Template to each student.   **T: “You are going to fill out your timelines silently. I will give you about 5 minutes to fill out your timelines. Remember, you and your partners already came up with great ideas that you can write under each subtitle. You will just select your events and write them in your template. After the class is finished, we’ll use sentence frames to talk about them. But for now, you will be silently filling out your timelines. If you finish your writing, you may draw pictures to go along with your events. You may begin.”**  你们要安静的填写个人时间线。我会给你们5分钟来做。记住，你和你的同伴已经想出来很多很棒的事件可以写在小标题下。你们就只要选出并写下你们想写的。全班做完以后，我们要用句型来讨论。但是现在，你们就安静的填。如果你写完了，可以在旁边画出事件的图片。可以开始了。   * Give the class about 5 minutes to complete their timelines. Walk around and ensure students understand the assignment. After 5 minutes, get the attention of the class.   **T: “Great work. You all have done a great job completing your timelines. You will now use the sentence frames to tell your partner about your timeline.”**  太好了。你们的时间线完成的太棒了。现在，你们要用这些句型来告诉你们同伴你自己的时间线。  *Use the Modeling Cycle:*  *Teacher Models:*   * Use a puppet, stuffed animal, object or imaginary partner to model.   **T1: “I will be Partner 1, and I will begin with the sentence frame about my infancy. ‘During my infancy I went for a walk in my stroller and then I learned to walk.’ Then it will be my partner’s turn to tell me about what he/she did in infancy.”**  我现在是1号同学，我来开始用句型说我的婴儿期。‘我在我的婴儿车里学走路然后我学会了走路。’然后就该我的同伴告诉我他/她在婴儿期做了什么。  **T2: “During my infancy I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”**  在婴儿期我\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_。  **T1: “Now I will use the sentence frame about my early childhood. ‘During my early childhood I went to the zoo and then I went to preschool.’ Then it will be my partner’s turn to tell me about what he/she did in early childhood.**  现在我要用句型来讲我的幼儿期。‘在幼儿期我去了动物园，然后我开始上幼儿园。’然后就该我的同伴给我讲他/她的幼儿期了。  **T2: “During my early childhood I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**  在幼儿期我\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_。  **T1: “Then I repeat the same pattern with the next two sentence frames for lower elementary and upper elementary.”**  然后我重复刚才的步骤，来完成小学低年级和小学高年级。  *Teacher Models with Student*   * Call up a student to help you model using the lower elementary sentence frame. Have the student bring up his/her paper and place it under the document camera.   **T: “I will be partner 1. ‘During my lower elementary years I lost my first tooth and then I read my first chapter book.’”**  我来做1号同学，‘在我小学低年级的时候，我掉了第一颗牙，然后我读了第一本书。’  *S: During my lower elementary years I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.*  在小学低年级时我\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_。  *Two Students Model:*   * Call up a pair of students to model using the upper elementary sentence frame. Have the students bring up their papers and place them under the document camera during their turns.   *S1: During my upper elementary years I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.*  *S2: During my upper elementary years I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.*  在小学高年级时我\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_。  在小学高年级时我\_\_\_\_\_\_\_\_\_\_\_，然后我\_\_\_\_\_\_\_\_\_\_\_。  *All Students Practice:*   * Tell students they can all practice using the sentence frames with their partners.   **Introduction to New Material (Direct Instruction): (8 minutes)**  Show the timeline vocabulary card.  **T: “Remember, a timeline is a representation of events within a particular period of time arranged in order of when they happened. Let’s look at an example of a timeline. We practiced using a personal timeline. Now we are going to apply all that we have learned about landforms and especially landforms in Utah to make a Geological Timeline of events in Utah.**  记住，时间线是把一系列的事件按照时间顺序排列出来的。我们来看一个例子。我们练习了个人时间线。现在我们要把我们所学的关于地形，尤其是犹他州地形的知识应用到制作犹他州地质时间线上。   * Show the sample of a geological timeline on the board.   **T: “We took a quick look at this timeline before. We established that his timeline has a title and subtitles with different events. Let’s look closely at these subtitles. Our geological timeline has these two subtitles- Mesozoic and Cenozoic. These are considered ‘Eras’. You can see the label ‘Era’ here on our timeline.”** Point to Era. **“There are Eras before these two that exist in the history of the world, but we are not going to talk about them today. You can see these two Eras take place in between 252 million years ago and the present, or today.”** Point to the Time Frame labeled on the timeline.  **“The Eras are broken down into Periods. We can see some of the periods here.”** Point to the Periods on the timeline and the label. **”And the Periods are broken down into Epochs. We can see the epochs here.”** Point to the Epochs on the timeline and the label. **”Does anyone recognize any of the Periods labeled here? Think for a few seconds… now turn and discuss your ideas with a partner.”**  我们刚刚见过这个时间线。我们已经知道这个时间线有一个标题和很多副标题，还有很多不同的事件。我们来仔细看看这些副标题。这个地质时间线有两个副标题 – 中生代和新生代。这些属于‘代’。我们可以看到‘代’在这里。Point to Era. 历史上在这两个时代前还有其他的代，但是我们今天只讨论这两个。我们可以看到这两个代发生在据现在，或者说今天到二亿五千二百万年前之间。Point to the Time Frame labeled on the timeline. 代又被划分为纪。这里可以看到一些纪。Point to the Periods on the timeline and the label. 纪又被划分为世，我们可以看到一些世。Point to the Epochs on the timeline and the label. 有人认出这些纪的标题吗？想一想... 现在和你的同伴讨论一下你的想法。  Students discuss their ideas.   * Ask a few students to share out.   **T: “You all had some good ideas. These subtitles are geological periods of time. A lot of you have heard of the Jurassic time period. What happened from this time period?”**  你们有一些好想法。这些副标题是地质学中的纪。很多同学都听说过侏罗纪吧。侏罗纪发生了什么？  *S: Dinosaurs!*  恐龙！  **T: “You are right! Dinosaurs lived during the Jurassic period. It was a period of time a long, long time ago. Looking at this timeline, what is the very first period of time called? Talk with your partners.”**  非常正确！恐龙生活在侏罗纪时期。那是很久很久以前的是短时间了。看一下时间线，第一个纪是什么？和你的同伴讨论一下。  *S: Triassic.*  三叠纪。   * Have the whole class share out.   **T: “Yes, this is the Triassic period. Now think about Eras. Which Era are we in now? This one might be a little difficult. Talk with your partners.”**  对，是三叠纪。现在想想代，我们现在是什么时代？这个可能有点难。和同伴讨论一下。  *S: Cenozoic.*  新生代。   * Have the whole class share out.   **T: “Yes, we are now in the Cenozoic Era. We are not going to learn more details about each of these Eras, Periods or Epochs at this time. You just need to know that the world’s geological time is organized into Eras, Periods and Epochs, and they have names. You will be using some of their names in the geological timeline you will be creating. We are first going to work on a class timeline all together.”**  对，我们现在在新生代。我们这次不会学关于代、纪、和世的细节。你们只要知道世界的地质时间是按代、纪、世划分的。当你做地质时间线的时候，你将会用到这些名称。我们先一起来做一个时间线。   * Post the large pictures of Utah in order.   **T: “Many things happened to the land in the world over these past millions and millions of years. Today, we’re going to look at some major changes to the land in Utah over these past millions of years. We have pictures of Utah here from different Epochs of time. This first picture of Utah is from an Era before out timeline even begins called the Precambrian. Look how much of the state was covered in water. Is that how our state looks now?”**  过去的几亿年间，地球上发生了很多很多的事情。今天，我们来看一看过去几亿年犹他州发生的主要变化。这里有很多关于犹他州的不同世的图片。第一张图片是犹他州在我们的时间线之前的一个代，叫前寒武纪。很多地方都被水覆盖。这是犹他现在的样子吗？  *S: No!*  不！  **T: “No, our state looks much different. Additionally, during this Era the water that covered Utah was part of the ocean. Utah was on the west coast at this point. The ocean covered much of the land that we now have on the West coast. The part of Utah covered by deep oceans also was covered in coral reefs. These later became what we see now- thick limestone in the Wasatch Mountains. The eastern part of the state was a low plain. Turn to your partners and explain one thing that happened to Utah during this era.”**  对，我们犹他现在大有不同。而且，在这个时期，覆盖着犹他的水是大海的一部分。犹他州在那个时期是西部海岸。我们今天的西海岸很多土地都是被大海覆盖着的。犹他州被海覆盖的部分也被珊瑚礁覆盖。后来都变成了今天我们在沃萨奇山脉中看到的密集的石灰岩。犹他州的东部是一个很低的平原。和同伴讨论一下在这个时期犹他州发生的事。  *S: The Western part of Utah was covered in deep ocean and coral reefs.* (Answers will vary)  犹他西部被大海和珊瑚礁覆盖。   * Point to the 5th Utah picture.   **T: “This was during the Paleocene Epoch.”** Point to the Epoch on the timeline. **“During this time, the western mountains were worn down by erosion. Deposition left sediments to collect which filled this inland sea to the east. There was a lot of pressure from the Pacific Plate which caused these Uinta Mountains to uplift. A large freshwater body was formed when water filled a depression in central Utah called Lake Flagstaff. Turn to your partners and explain one thing that happened to Utah during this epoch.”**  这幅图是在早第三纪。Point to the Epoch on the timeline. 在这个时期，西部的山脉被慢慢侵蚀了。沉淀留下的沉积物被冲到了东部，变成了这个内陆湖。来自太平洋板块的巨大压力使得尤因塔山脉隆起。大量的淡水在犹他中部的洼地中聚集，形成了旗杆湖。和同伴讨论一下这个时期犹他发生了什么。  *S: Lake Flagstaff was formed when freshwater filled a depression in central Utah.* (Answers will vary)  淡水流进了犹他中部的洼地，形成了旗杆湖。   * Point to the 9th Utah picture.   **T: “This was during the Pleistocene Epoch.”** Point to the Epoch on the timeline. **“During this time, Utah looked much the way it does now. The mountains, canyons and rivers were in place. However, the climate at this time was wetter and colder. Therefore, many glaciers formed which carved more canyons and expanded. Many of you have heard of Lake Bonneville. At this time, a giant body of water was formed, called Lake Bonneville. You can see it stretched from the Wasatch Mountains to Nevada and from the Utah-Idaho border all the way to southern Utah. Turn to your partners and explain one thing that happened to Utah during this epoch.”**  这是发生在更新世的。Point to the Epoch on the timeline. 在这期间，犹他的样子和现在已经很接近了。山脉，峡谷，河流都已经形成了。但是，当时的气候更潮湿，更冷。所以，许多许多冰川形成了，之后冰川又形成了更多的峡谷。可以看到它从沃萨奇山脉一直延伸到内华达州，从犹他-爱达荷边界一直延伸到南犹他。和同伴讨论一下这个时期犹他发生了什么。  *S: The climate was cold and wet and formed glaciers. A large body of water called Lake Bonneville covered most of the state.* (Answers will vary)  气候很冷很潮湿，形成了很多冰川。博纳维尔湖中有很多的水，覆盖了犹他很大一部分地区。  **Guided Practice: (12 minutes)**  **T: “We have only gone over three of the Utah pictures and what happened at that time. We will be going over the rest in a class activity. You and a partner will work together and will receive a ziplock bag with Utah cards in them and with descriptions. I will point to a Utah picture on the board and you will find yours that looks just like it. I will tell you the Era or Epoch to look for, and you and your partner will find the matching description card. You will read the description card together, then one partner will ask, “What is one thing that happened to Utah during this Era/Epoch?”** Post and point to the sentence frame. **“Next, the other partner will respond, “During the \_\_\_\_\_\_ Era/Epoch in Utah, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. And will describe what you read on the card and what you see in the Utah picture.”** Post and point to the sentence frame. **“You will leave the picture and card matched together for our next activity.”**  我们只看了和讨论了3幅犹他州的图片。我们在课堂活动中会看其他的。你和你的同伴一起将会得到一个塑料袋，里面装着犹他卡，卡上有说明。我会指一幅犹他图，你们要找到和这幅一模一样的。我会告诉你们它是什么代或什么世，你和同伴要找到相应的卡片。你们一起读卡上的说明，然后一个同学问‘犹他州在这个时期发生了什么？’Post and point to the sentence frame. 接着，另一个同学要回答‘在\_\_\_\_\_\_\_代/世，犹他\_\_\_\_\_\_\_\_\_’。然后描述你们在卡上和图片上看到了。Post and point to the sentence frame. 你们要把相应的图片和卡片配到一起，我们后面的活动会用到。  *Use the Modeling Cycle:*  *Teacher Does:*   * Use a stuffed animal, puppet or imaginary partner to model.   **T: “As the teacher, I will point to a Utah picture on the board. I’m going to point to number 2 and my students will need to find the Utah card and the Early Jurassic description card.”**  我现在是老师，我指出一幅犹他州的图片。我要指2号图片，然后同学们要找出相应的卡片，和早侏罗世的描述卡。   * Point to Utah picture number 2.   **T: “Now my partner and I will find the same Utah picture card and the Early Jurassic description card. When the teacher says, ‘Go’ we will read it quietly together.”**  现在我的同伴和我将会找出相同的犹他图片和早侏罗世的描述卡。当老师说开始的时候，我们一起轻轻的读出来。   * Read the description aloud.   **T1: “I will be Partner 1. I will ask, ‘What is one thing that happened to Utah during this Epoch?’”** Point to the sentence frame.  我现在是1号同学。我要问‘在这个时期犹他州发生了什么？’  **T2: “My partner will then answer, ‘During the Early Jurassic Epoch in Utah, the blowing sands formed sand dunes which turned to rock.’”** Point to the sentence frame. **“You will then leave the picture and the description card matched together for our next activity. And Partner 2 will now ask the question, and Partner 1 will respond.”**  我的同伴会回答说‘在犹他州早侏罗世，风吹沙子形成了山丘，之后又变成了石头。’Point to the sentence frame. 然后你把图片和描述卡放在一起，为后面的活动准备。然后2号同学现在该问问题了，1号同学来回答。  *Teacher Does with Student:*   * Select a student to come help you model.   **T: “Let’s look at Utah picture number 3. Everyone find the Utah card number 3.”**  的我们来看看3号图片。所有人找到3号图片。   * Find the Utah card number 3 with your partner.   **T: “Find the Late Jurassic description card.”**  找到晚侏罗世的卡。   * Find the Late Jurassic description card with your partner. Read the card together with your partner.   **T: “You be Partner 1 and I’ll be Partner 2. Use the sentence frame to ask the question.”**  你是1号同学，我是2号同学。用这个句型来问问题。  *S: What is one thing that happened to Utah during this Epoch?* Point to the sentence frame.  在这个时期犹他州发生了什么？  **T: “During the Late Jurassic Epoch in Utah, the state had hot swamps, mountains and volcanoes while dinosaurs roamed the earth. Next turn, I will ask the question and you will answer.”**  在晚侏罗世，犹他州有热沼泽，山脉和火山，同时恐龙生活在地球上。下一回合，我来问，你来答。  *Two Students Model:*   * Select two students to come help you model.   **T: “Let’s look at Utah picture number 4. Everyone find the Utah card number 4.”**  我们来看4号图片。所有人找到4号卡。  The students find the Utah card number 4.  **T: “Find the Late Cretaceous description card.”**  找到晚白垩世的卡。  The students find the Paleocene description card. They read the card together.  *S1***:** *What is one thing that happened to Utah during this Epoch?*  在这个时期犹他州发生了什么？   * Point to the sentence frame.   *S2***:** *During the Late Cretaceous Epoch in Utah coal swamps formed and dinosaurs roamed Utah.*  在晚白垩世，犹他形成了煤炭沼泽，恐龙也生活在犹他。  **T: “Next turn, student two will ask the question, and student one will answer. Leave these cards matched for our next activity.”**  下一回合，2号同学来问，1号同学来答。把这些卡都放到一起。  *All Students Practice:*   * Point to different pictures of Utah and select the description card that goes with the picture. You can repeat the process using pictures of Utah from the modeling cycle, or you can use the ones you haven’t yet talked about. Prompt students to find the right cards and to use the sentence frames. Support students and correct errors as needed.   **Independent Practice: (15 minutes)**   * Get students’ attention. Pass out a copy of the geological timeline to each partnership (2 pages). Also pass out two additional pieces of white paper, or a larger chart paper if you wish for students to cut and paste the timeline on a larger piece of paper. Model the process as you explain:   **T: “We will now make a timeline that will include these pictures and descriptions. First you will**: (Pick one of the two options)  现在我们要用这些图片和卡片来制作时间线了。首先你要：(Pick one of the two options)   1. **Tape/Paste the two parts of the timeline together. You will then tape/paste the two blank pages on the bottom of the timeline.**   1. 把时间线的两部分粘起来。然后在下面粘两张白纸。   1. **Tape/Paste the two parts of the timeline together. You will then tape/paste the timeline onto the larger chart paper, with the timeline near the top.”**   2. 把时间线的两部分粘起来。然后把时间线沾到大的表格纸上，时间线要在最上面。  Students follow the directions to prepare the timeline in the way the teacher explained and modeled.  **T: “You will now paste the Utah picture and the description in the appropriate place. While doing so, you and your partner will use the sentence frames to ask and answer the question.”**  现在，你们要把犹他州的图片和描述卡贴在相应的位置上。同时，和你的同伴用我们的句型来问问题。  *Use the Modeling Cycle:*  *Teacher Does:*   * Use a stuffed animal, object, or imaginary partner to model.   **T: “My Partner and I will start with the first Utah picture and description. Remember they are part of an Era before our timeline begins. We can paste them on the very edge of our paper to show they happened before our timeline.”**  我的同伴和我从第一幅图开始。记住他们是属于我们时间线之前的。我们可以把它贴在最边上来说明这是发生在我们时间线之前的。   * Paste them on the paper. * Read the card.   **T1: “I will be Partner 1. I will ask, ‘What is one thing that happened to Utah during this Era?’”**  我现在是1号，我要问‘在这个时期犹他州发生了什么？’Point to the sentence frame.  **T2: “My partner will then answer, ‘During the Precambrian Era in Utah, the west part of Utah was covered by deep oceans.’”** Point to the sentence frame. **“It would then be my partner’s turn the next time to ask the question, and then I would answer.”**  我的同伴要回答‘在前寒武纪，犹他的西部被大海覆盖。’Point to the sentence frame. 然后就该我的同伴问我问题，然后我回答。  *Teacher Does with Student:*   * Select a student to come help you model.   **T: “We are going to paste the second Utah picture and description in the right place.”**  我们要把第二张犹他图片和描述卡贴到相应的位置。   * Find the Utah card number 2 and description card with your partner. * Read the card together with your partner.   **T: “You be Partner 1 and I’ll be Partner 2. Use the sentence frame to ask the question.”**  你来做1号同学，我是2号。用这个句型来问问题。  *S: What is one thing that happened to Utah during this Epoch?* Point to the sentence frame.  在这个时期犹他州发生了什么？  **T: “During the Early Jurassic Epoch in Utah, the blowing sands formed sand dunes which turned to rock.”**  在犹他州早侏罗世，风吹沙子形成了山丘，之后又变成了石头。  *Two Students Model:*   * Select two students to come help you model.   **T: “Now they’re going to past the third Utah picture and description in the right place.”**  现在他们要来把3号图片和描述卡贴到正确的位置了。  The students find the Utah card number 3 and description.  The students read the card together.  *S1***:** *What is one thing that happened to Utah during this Epoch?*  在这个时期犹他州发生了什么？   * Point to the sentence frame.   *S2***:** *During the Late Jurassic Epoch in Utah, the state had hot swamps, mountains and volcanoes while dinosaurs roamed the earth.*  在晚侏罗世，犹他州有热沼泽，山脉和火山，同时恐龙生活在地球上。  **T: “Next turn, student two will ask the question, and student one will answer.”**  接下来，2号同学来问，1号来答。  *All Students Practice:*   * Tell students they can begin pasting the Utah pictures and descriptions to their timelines. Ensure students are using the appropriate sentence frames. As an extension you can have students draw pictures and write sentences to go with each description as well. Walk around and ensure students are following the correct procedure and using the correct sentence frames.   **Guided Exploration: (4 minutes)**   * Get the students’ attention.   **T: “Look at your timelines. Notice how Utah has changed over millions and millions of years. Look at the first picture. Now look at the last picture that is present day Utah. What are the major differences between these two pictures? Talk with your partners.”**  看着你们的时间线。注意犹他州在这几亿年间是如何变化的。看看第一幅图，再看看最后的今天的犹他。两图之间最大的不同是什么？和同伴讨论一下。  *S: There is not as much water. There are now more mountain ranges and the mountains are bigger. The state is no longer covered by the ocean.*  现在没有那么多水。有更多、更大的山脉。犹他州不再被大海覆盖。   * Have a couple of students share with the class.   **T: “We have studied about changes of the earth’s surface for the past few lessons. We have studied what causes these changes. What do you think causes these major changes in Utah over the millions of years? Talk with your partners.”**  过去几课，我们学习了地球的变化。我们也学了变化的原因。你们觉得犹他州发生的这些变化是由什么引起的呢？和同伴讨论一下。  *S: Erosion, weathering, deposition, volcanoes, earthquakes, etc.*  侵蚀、风化、沉积、火山、地震，等等。   * Have a couple of students share with the class.   **T: “You’re right. Just as weathering, erosion and deposition can change the land in Utah over time, these things change the land all over the world over time. We could make a similar timeline for the world and show many changes that have been made to the earth over these millions of years.”**  对。就像风化、侵蚀和沉积经过很长时间可以改变犹他州一样，它们也改变了整个地球。我们也可以制作世界的时间线，看看这几亿年间地球发生了怎样的变化。  **T: “Now, I want you think… what would Utah and the earth look like if there was not uplift, weathering or erosion. Talk with your partners.”**  现在，我要你们思考一下... 如果没有隆起，风化或者侵蚀，犹他州将会是怎样的？和同伴讨论一下。  *S: There would not be many mountains, lakes, rivers, canyons, caves, buttes, arches, or landforms.*  那就不会有这么多山脉，湖泊、河流、峡谷、洞穴、山丘、石拱等等的地形。   * Have a couple of students share with the class. You can choose to have the students make drawings of Utah or the earth after millions of years of weathering, erosion and uplift and another picture of Utah or the earth if there was not uplift, weathering or erosion.   **Closing: (3 minutes)**  **T: “Excellent work today class! Let’s see if we met our learning objective. When I say, ‘Go’ I want you to turn to your partners and read the objective together in a quiet voice. Ready, Go!”**  同学们今天真棒！让我们来看看我们是否完成了学习目标。我说开始的时候，和同伴一起安静的读出今天的目标。准备，开始！  *S: I can create a personal timeline and a geological timeline by ordering important Utah events and pictures with a partner*  我可以制作一个个人的时间线，也可以和一个同伴一起制作一个地质学的时间线，包括排列犹他州的重要事件和图片。   * Use attention-getting signal.   **T: “Great! Now, when I say, ‘Go’ I want Partner 2 to explain in your own words to Partner 1 what you learned today and how you know you learned it. Ready, Go!”**  好！我说开始的时候，2号同学用自己的话告诉1号同学我们今天学了什么，怎么知道我们学会了。准备，开始！  *S2: We learned about events in the geological timeline of Utah. We know we learned it because we created a timelines with a partner.*  我们学了犹他州地质时间线中的事件。我们通过和同伴制作了一个时间线学会了今天的内容。  **T: “Great! Now, when I say, ‘Go’ I want Partner 1 to explain in your own words to Partner 2 what you learned today and how you know you learned it. Ready, Go!”**  非常好！我说开始，1号同学用自己的话告诉1号同学我们今天学了什么，怎么知道我们学会了。准备，开始！  *S1: We learned about personal and geological timelines. I know we learned it because we completed a personal timeline independently and a geological timeline with our partners.*  我们学了犹他州地质时间线和个人时间线。我们学会了，因为我们独立制作了个人时间线，和同伴一起制作了地质时间线。  **T: “Let’s hear what a couple of you have to say.”**  让我听听你们都说了什么。   * Call on a couple of students to share what they learned and how they know they learned it.   **T: “Excellent. It is clear to me that we met our objective today. As you go home today, look at the landforms around you and think about how your environment would look if there was not weathering, erosion, uplift or deposition. Great job today!”**  太好了。很明显，我们今天完成了我们的目标。回家以后，看看你周围的地形，想想如果没有风化、侵蚀、隆起或者沉积，我们周围的环境会怎样。今天太棒了！ | | | |
| **Assessment:** | | | |
| Teacher observation of language during guided practice and independent practice, and collection and assessment of the timelines completed in partnerships. | | | |
| **Extra Ideas:** | | | |
| * This lesson can be split into two lessons since it has two Introductions to New Material, Guided Practices and Independent Practices * The second Independent Practice can be extended to include writing of a summary of the events * The Guided Exploration can be extended to include drawings and writing about what the world would look like without weathering, erosion and uplift. | | | |

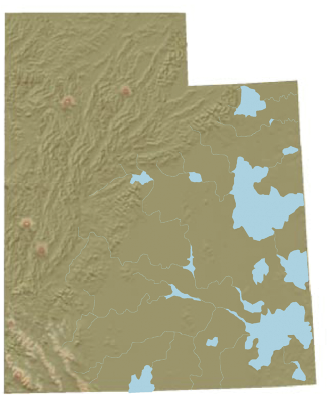
**Large Utah Picture #1**



**Large Utah Picture #2**

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**Large Utah Picture #3**

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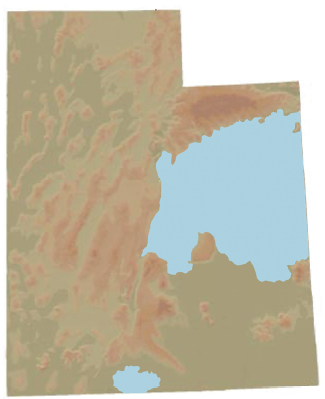
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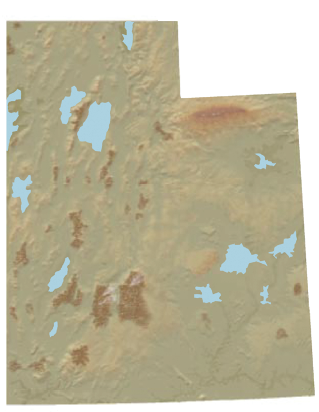
**Large Utah Picture #5**

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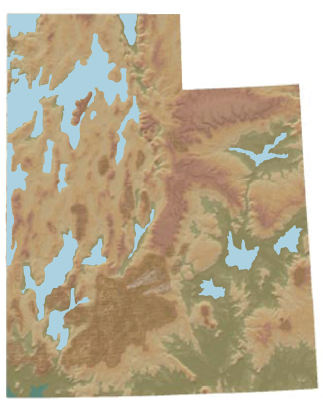
**Large Utah Picture #6**

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**Large Utah Picture #7**

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**Large Utah Picture #8**

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**Large Utah Picture #9**

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**Large Utah Picture #10**

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**Small Utah Cards**

|  |  |  |  |
| --- | --- | --- | --- |
| **1** | **2** | **3** | **4** |
| **5** | **6** | **7** | **8** |
| **9** | **10** |  |  |

**Utah Description Cards**

|  |  |  |  |
| --- | --- | --- | --- |
| **Paleozoic Era: The Early Years**  During this era, Utah was at the western edge of North America. The eastern portion of the state was a low plain. The western part of the state was in deep oceans which were covered coral reefs. These reefs are now thick limestone in the Wasatch Mountains. | **Early Jurassic Epoch: Wind Deposited Sands**  During this epoch, desert sands were blown into Utah from the north and southwest, as the mountains were rising to the west. The blowing sands formed sand dunes, which eventually turned into rock and later preserved in Navajo Sandstone. These dunes can be seen at Checkerboard Mesa in Zion National Park. | **Late Jurassic Epoch: Famous Dinosaurs**  During this epoch, Utah was a hot, swampy lowland with mountains and volcanoes to the west and northwest. There were many rivers and lakes and dinosaurs roamed the land. Their fossilized bones can be seen in monuments and museums in Utah. | **Late Cretaceous Epoch: Coal Formations**  During this epoch, high mountains in western Utah were created from the continental collision with the Pacific Plate. The eastern portion of the state was covered by an inland sea that stretched from the Gulf of Mexico to the Arctic. Coal swamps formed behind barrier islands while dinosaurs continued to roam. |
| **Paleocene Epoch: Utah Starts to Come Up in the World**  During this epoch, erosion wore down the mountains to the west, and sediments deposited and filled the inland sea to the east. Continued pressure from the Pacific Plate caused the Uinta Mountains to uplift. A large freshwater body called Lake Flagstaff occupied a depression which is now central Utah. | **Eocene Epoch: Oil Shale and Fossil Fish**  During this epoch, Utah continued its rise to nearly a mile high in elevation above sea level. Basins for lakes were created, such as Lake Uinta. Sediments continued to deposit and created well-preserved fish fossils and oil shales. | **Oligocene Epoch: Uplift and Volcanoes**  During this epoch, the lake basins were filled in and plains separated the mountain uplifts. Rivers ran across these plains. With the beginning of extension in western Utah major volcanic activity started to occur. | **Miocene Epoch: Precious Metals Emplaced**  During this epoch, the Basin and Range were formed. Volcanic activity continued forming three great metallic mineral belts. |
| **Pleistocene Epoch: Water and Ice**  During this epoch, the geography of Utah was close to what it is now. Mountains, canyons and rivers were all in place. The climate at this time was wetter and colder and glaciers formed. Canyons were carved and expanded in the Uinta Mountains and other mountain ranges. A giant body of water called Lake Bonneville formed, stretching from the Wasatch Mountains, to Nevada and from Utah-Idaho border to southern Utah. | **Present: These are the Places**  This is current Utah. The rocks to the east are brightly colored, while those to the west have softer colors. There are massive canyons, as well as the Basin and Range. The Wasatch Mountains run down the middle of the state. The geological history determines where people settle, the goods they produce, and how they enjoy themselves. |  |  |

**See additional document: Landforms Part 6 Attachment for additional documents**