|  |  |  |
| --- | --- | --- |
| **退出卡Iushi Grade 5** | **Lesson:** **Landforms Part 3** | Reference to English Interconnections LessonShaping the land pg. 11 |
| **Science Standard(s): Standard 2 Objective 1** |
| **Content Objective(s):** | **Language Objective(s):** |
| Students will be able to demonstrate the affect of weathering and erosion on different landforms (cliffs, arches, a lake and delta) over time by creating a model and describing its formation on an exit ticket independently.***I can show the affect of weathering and erosion on different landforms (such as cliffs, arches, a lake and delta) over time by creating a model and explaining how I formed it on an exit ticket independently.*****能够通过制作模型来演示风化和侵蚀是如何常年影响不同地貌（如悬崖，拱，湖畔和三角洲）并在退出卡中解释自己如何制造模型的。** | Students will be able to explain how weathering and erosion change different landforms (cliffs, arches, a lake and delta) over time by describing how they formed different landform models with a partner and small group.***I can explain how weathering and erosion change different landforms (such as cliffs, arches, a lake and delta) over time by making different landform models and explaining how I formed them with a partner and small group.*****能够通过制作不同地貌的模型来解释风化和侵蚀是如何常年影响这些地貌的（如悬崖，拱，湖畔和三角洲）并能和伙伴一起解释自己如何制作模型的。** |
| **Essential Questions:***How is the Earth’s surface changing over time?* 地球表面是如何随着时间的变化而变化的？ | **Required Academic Vocabulary for Word Wall:****Listen:** geological, lake, cliffs, arch, mountain, delta, landform, sandstone, penetrates, depression, sediment听：地质的，湖泊，悬崖，拱，山脉，三角洲，地貌，沙石，渗透，洼地，沉积物**Speak:** Weathering, erosion, cliffs, lake, arch, delta, sandstone, penetrates, depression说：风化，侵蚀，悬崖，湖泊，拱，三角洲，沙石，渗透，洼地**Read:** Weathering, erosion, cliffs, lake, arch, delta读：风化，侵蚀，悬崖，湖泊，拱，三角洲**Write:** Weathering, erosion, cliffs, arch, delta, sandstone, depression**写：风化，侵蚀，悬崖，拱，三角洲，沙石，洼地****Sentence Frames:**What landform did you create? 你做的是什么地貌？I created a \_\_\_\_\_\_.是\_\_\_\_\_\_How is a \_\_\_\_\_\_\_\_\_ formed?\_\_\_\_\_\_是怎样形成的？A \_\_\_\_\_\_\_\_\_ is formed by weathering and erosion because \_\_\_\_\_\_.\_\_\_\_\_\_是由于\_\_\_\_\_\_引起的风化和侵蚀形成。 |
| **Materials:*** Land formation Vocabulary Cards
* Modeling Clay or Model Magic—enough for each student to make small replicas of the different landforms.
* Exit Tickets
 | **Additional Lesson Vocabulary:**Fractured rock, escarpment (scarp), geologic fault, landslide, crater裂隙岩体，绝壁，地质断层，山体滑坡，火山口， |
| **Lesson:**  | **Instructional Time: 40 Minutes** |
| **Opening:** **(5 minutes)****T: “Let’s look at some of the beautiful landforms we looked at in our previous lesson and see what we remember.”*** Post the picture of the Butte. Let them clearly see the vocabulary word next to the picture as well.

老师：“让我们看一些上节课看过的漂亮地貌图片来看看大家记住了什么。”**T: “What is this landform, class?”****老师：“同学们这是什么地貌？”***S: This is a butte.*学生：是山丘.**T: “Yes, class. This is a BUTTE near Sedona, Arizona. Remember who is partner 1 and partner 2. Partner 1, turn to partner 2 and explain how a butte is made. Partner 2, help your partner if he/she needs it.”***S1: The butte is the flat top on a mesa that gets formed when the soft rock erodes away and the strong rock avoids erosion and covers a layer of softer rock.*老师：“是的这个就是亚利桑那州赛多耐附近的山丘。还记得谁是伙伴1谁是伙伴2吗？伙伴1，要向伙伴2解释山丘是如何形成的。伙伴2要给伙伴1必要的帮助。”Post the picture of the Grand Canyon.**T: “What is this landform, class?** **老师：“这是什么地貌？”***S: This is a canyon.**学生：峡谷***T: “Yes, this is The Grand Canyon in Arizona. Partner 2, turn to partner 1 and explain how a canyon is made. Partner 1, help your partner if he/she needs it..”****老师：“对，这是亚利桑那州附近的大峡谷。伙伴2给伙伴1解释峡谷是如何形成的。伙伴1给予伙伴2必要的帮助。”***S2: A canyon is formed when after a long period of time water forms a valley and erodes the land beneath it and carries away rock and soil. The rock and soil continue to weather away the land as they are carried away.*学生：峡谷是由河水经过很长时间侵蚀山谷的河床并冲蚀岩石和土壤而形成的。而被冲蚀的岩石和土壤又不断地侵蚀蚀河床。* Post the picture of the valley.

**T: “What is this landform, class?** **老师：“同学们这是什么地貌？”***S: This is a valley.**学生：山谷。***T: “Yes, class. This is Little Cottonwood Creek Valley. It is in the Wasatch Mountains here in Utah! Partner 1, turn to partner 2 and explain how a valley is made. Remember there are V-shaped valleys and U-shaped valleys. Partner 2, help your partner if he/she needs it.”****老师：“是的同学们。这是位于犹他州瓦萨奇山脉的小杨溪谷。伙伴1向伙伴2解释山谷是如何形成的。记住山谷分为V字形和U字形两种的。伙伴2给伙伴1必要的帮助。”***S1: A V-shaped valley is formed by flowing water. It will be more narrow at the bottom if the water is moving quickly. It will be wider at the bottom if the water is moving more slowly. U-shaped valleys are formed by glaciers that melt and disappear.**学生：V字形的山谷是由流水形成的。如果水流比较快山谷底部会比较窄，反之就比较宽。U字形的山谷是由冰川融化消失后形成的。** Post the picture of the arches.

**T: “Here is a new landform, but it should be a familiar sight. This is Delicate Arch in Southern Utah. Stand up if you have seen this landform.”****老师：“这是新的地貌，但是大家应该对它不陌生。这是南犹他州的精美拱门。如果见过这样地貌的同学请站起来。”*** Let them stand up quickly and then sit down again.

**T: “Today we’re going to learn about some other landforms and how they’re formed, including cliffs, arches, lakes and deltas. The processes and forces of weathering and erosion change the surface of the Earth and create new and interesting shapes.”****老师：“今天我们要学习其他的地貌以及它们形成的原因包括：悬崖，拱，湖泊和三角洲。风化和侵蚀地表的各种力量和过程形成了地球表全新的和有趣的形状。”****T: “Let’s take a look at our learning objective today.”** Point to the student objective **‘**I can show the affect of weathering and erosion on different landforms (such as cliffs, arches, a lake, and a delta) over time by creating a model and explaining how I formed it on an exit ticket independently.’ **“In your partnership, I want one of you to be partner 1 and one of you to be partner 2. Take 5 seconds to decide.”** **老师“我们来看看今天的学习任务。“能够通过制作模型来演示风化和侵蚀是如何常年影响不同地貌（如悬崖，拱，湖畔和三角洲）并在退出卡中解释自己如何制造模型的。现在我们做两人一组练习，给大家5秒钟时间决定谁做伙伴1谁做伙伴2.”**Students turn to their neighbors and decide who is partner 1 and who is partner 2. Then regain their attention. **T: “Partner 2, when I say “go” you will ask your partner, ‘What are we going to do today?’” Write the question on the board. “Partner 1, you will read the objective on the board.”** Point to the objective. **“Then Partner 1, you will ask, ‘What is one thing we will learn today and how will we know we learned it?’”** Write the question on the board. **“Partner 2 will respond to the question by explaining one thing the class will learn today and how they will know they learned it. Let’s Practice.”** **老师：“伙伴2，当我说“开始”时，你们问伙伴1：今天我们的学习任务是什么？”把问题写在黑板上。“伙伴1，你们要仔细阅读写在黑板上的学习任务，并且回答伙伴2的问题，然后伙伴1问伙伴2“我们今天要学的其中一项内容是什么以及我们怎样知道已经掌握了所学内容？””把问题写在黑板上。“伙伴2回答今天我们要学习的内容以及如何知道我们都掌握了。”***Use the Modeling Cycle:**Teacher Does:** Use a puppet, stuffed animal, or imaginary partner to use as your partner to model.

**T: “I am Partner 2 and my (puppet, stuffed animal, imaginary partner) is Partner 1. As Partner 2, I will ask, ‘What are we going to do today?’”** Point to the question on the board. **“My partner will say, ‘I can show the affect of weathering and erosion on different landforms (such as cliffs, arches, a lake, and a delta) over time by creating a model and explaining how I formed it on an exit ticket independently.’ What is one thing we will learn today and how will we know we learned it?”** Point to the question on the board. **“As Partner 2 I will say something like, ‘We are going to show how weathering and erosion change landforms by making a model and explaining how we made it on an exit ticket by ourselves.’”*****老师：我是伙伴2，我的（小道具，小动物或想象的任何事物）是伙伴1. 那我就会问 , “*今天我们的学习任务是什么？” *它就会回答：”* 能够通过制作模型来演示风化和侵蚀是如何常年影响不同地貌（如悬崖，拱，湖畔和三角洲）并在退出卡中解释自己如何制造模型的。我们今天要学的其中一项内容是什么以及我们怎样知道已经掌握了所学内容？”“我就会说：我们要看一些有关风化，侵蚀，和沉积的例子，并能识别和解释它们如何改变地表的。通过课后的测试来判断我掌握了哪些知识。”***Teacher Does with Student****:**** Select a student to come up and model with you.

**T: “I am Partner 2 and \_\_\_\_\_\_\_\_\_ is Partner 1. As Partner 2, I will ask, ‘What are we going to do today?’”** Point to the question on the board. **“My partner will read the objective.*****老师：我是伙伴2，我的*\_\_\_\_\_\_\_\_\_*是伙伴1. 那我就会问 , “*今天我们的学习任务是什么？”它就读出写在黑板上的学习任务。***S: We are going to show how weathering and erosion change landforms by making a model and explaining how we made it on an exit ticket by ourselves.**学生：***能够通过制作模型来演示风化和侵蚀是如何改变不同地貌的并在退出卡中解释自己如何制造模型的。****T: “Now my partner will ask this question.”** Point to the board.老师：“现在伙伴1就会问这个问题”*S: What is one thing we will learn today and how will we know we learned it?**学生：***我们今天要学的其中一项内容是什么以及我们怎样知道已经掌握了所学内容？****T: “We are going to show how weathering and erosion change landforms by making a model and explaining how we made it on an exit ticket by ourselves.”**老师：“**能够通过制作模型来演示风化和侵蚀是如何改变不同地貌的并在退出卡中解释自己如何制造模型的。**”*Two Students Do:** Select two students to come up and model with you.

**T: “Who would like to be Partner 2 and Partner 1? Take 5 seconds to decide.”****老师：给大家5秒钟时间决定谁做伙伴1谁做伙伴2.”**Students decide who is Partner 2 and who is Partner 1.* Point to the first question on the board.

*S1:* What are we going to do today?学生：我们今天的学习任务是什么？* Point to the objective.

*S2: We are going to show how weathering and erosion change landforms by making a model and explaining how we made it on an exit ticket by ourselves.**学生：***能够通过制作模型来演示风化和侵蚀是如何改变不同地貌的并在退出卡中解释自己如何制造模型的。*** Point to the other question on the board.

*S2: What is one thing we will learn today and how will we know we learned it?**学生：***我们今天要学的其中一项内容是什么以及我们怎样知道已经掌握了所学内容？***S1: We are going to show how weathering and erosion change landforms by making a model and explaining how we made it on an exit ticket by ourselves.**学生：***能够通过制作模型来演示风化和侵蚀是如何改变不同地貌的并在退出卡中解释自己如何制造模型的。***All Students Practice:** Give the class 1-2 minutes.

**Introduction to New Material (Direct Instruction): (15 minutes)*** Pass out a small amount of model magic clay to each student.

**T: “Please do not touch this science tool until I say, ‘Go!’ If you decide to touch it, I will have to hold it for you and you will not be able to use if for the lesson. Today we are going to look at how some different landforms are shaped by weathering and erosion.”****老师：“我说开始以后大家才可以触摸这个科学模具，否则我就会收走模具，你就没办法在课堂上再使用了。今天我们将要看到风化和侵蚀是如何形成不同地貌的。”*** Post the picture of the cliffs.

**T: “These are the World’s Tallest Cliffs! They are the Trango Towers in Pakistan. Cliffs are formed as weathering works on the upper parts of the cliff and erosion wears away the base of the cliff. Steep cliffs are formed from hard rocks that are resistant to weathering. The hard rocks erode and weather slowly. Softer rocks and fractured rocks form more gently sloping cliffs because they erode more easily. An** [**escarpment**](file:///C%3A%5Cwiki%5CEscarpment) **(or scarp) is a type of cliff formed by the movement of a** [**geologic fault**](file:///C%3A%5Cwiki%5CGeologic_fault)**, or a** [**landslide**](file:///C%3A%5Cwiki%5CLandslide).”老师：“这些是世界上最高的、位于巴基斯坦川口塔的悬崖。悬崖是由于风化和侵蚀分别作用于顶部和底部而形成的。陡峭的悬崖是由于坚硬的岩石不断受到风化而形成的。坚硬的岩石一般风化和侵蚀的速度比较慢。而相对软一些的岩石和断岩由于更容易侵蚀因而会形成比较平缓的悬崖。绝壁是由于地质断层或是山体滑坡造成的。* Under the document camera, use a piece of clay to make the formation.

**T: “Now, I want you to create this formation. You have one minute to do so. Go!”****老师: “现在大家有1分钟的时间来完成这个模型。”**Students make the landform.* Get the students’ attention.

**T: “Remember, CLIFFS are formed as the upper parts of the cliff are weathered and the base of the cliff is worn away by erosion. Steep cliffs are often formed by harder rock that is resistant to weathering. Gently sloping cliffs are formed by softer rocks and fractured rocks that erode more easily. When I say go, I want Partner 2 to turn to Partner 1 and use your model to explain how the cliffs are formed. Go!”****老师：“记住：**悬崖是由于风化和侵蚀分别作用于顶部和底部而形成的。陡峭的悬崖是由于坚硬的岩石不断受到风化而形成的。而相对软一些的岩石和断岩由于更容易侵蚀因而会形成比较平缓的悬崖。当我说开始的时候，伙伴2用你们做的模型向伙伴1解释悬崖是如何形成的。**”**Students use their models to explain.*S2: Cliffs are formed when the upper parts of the cliff are weathered and the base is worn away. The harder rocks are resistant to weathering and create steep cliffs. The softer rocks erode more easily and create gently sloping cliffs.**学生：*悬崖是由于风化和侵蚀分别作用于顶部和底部而形成的。陡峭的悬崖是由于坚硬的岩石不断受到风化而形成的。而相对软一些的岩石和断岩由于更容易侵蚀因而会形成比较平缓的悬崖。**T: “Great, now when I say go, I want Partner 1 to turn to Partner 2 and use your model to explain how cliffs are formed. Go!”****老师：“很好，现在我要**伙伴1用你们做的模型向伙伴2解释悬崖是如何形成的。**”**Students use their models to explain.*S1: Cliffs are formed when the upper parts of the cliff are weathered and the base is worn away. The harder rocks are resistant to weathering and create steep cliffs. The softer rocks erode more easily and create gently sloping cliffs.**学生：*悬崖是由于风化和侵蚀分别作用于顶部和底部而形成的。陡峭的悬崖是由于坚硬的岩石不断受到风化而形成的。而相对软一些的岩石和断岩由于更容易侵蚀因而会形成比较平缓的悬崖。**T: “Excellent. We know that cliffs are formed as the upper parts are weathered and the bases are eroded and worn away. The steep cliffs are made from harder rock that is resistant to weathering and erosion. The softer rock erodes more easily and creates the gently sloping cliffs.”**老师：“很好。我们知道了悬崖是由于风化和侵蚀分别作用于顶部和底部而形成的。陡峭的悬崖是由于坚硬的岩石不断受到风化而形成的。而相对软一些的岩石和断岩由于更容易侵蚀因而会形成比较平缓的悬崖。”* Post the picture of the arches.

**T: “Here is our arch. There are two main types of arches- weather eroded arches and water eroded arches. Weather eroded arches are typically made of sandstone and form when deep cracks penetrate into a sandstone layer. Erosion occurs when the rain water and wind wear away exposed rock layers and enlarges the surface cracks. Alternating frosts and thawing cause crumbling and flaking of the porous sandstone and eventually cut through. The resulting holes become enlarged by rockfalls and weathering. Arches can eventually collapse, leaving only buttresses that in time will erode. Water eroded arches form in the path of streams that wear away and penetrate the rock.”****老师：“这是拱，分为由风化侵蚀形成和由水侵蚀形成的两种。被风化侵蚀的拱通常是由沙石形成，当沙石层出现裂缝时，雨水和风就会带走暴露的岩石层使得裂缝变得更大，而冰冻以及融化交替作用使得疏松的砂石破碎、剥落，最终所有的沙石都会消失而形成一个个的洞，而岩石的坠落和风化又使这些洞变得更大，最终拱就会倒塌，剩下的拱璧也会在一段时间后被侵蚀。被水侵蚀的拱通常是被流经的小溪慢慢地侵蚀岩石而形成的。”*** Under the document camera, use a piece of clay to make the formation. Create both types of arches.

**T: “Now, I want you to create this formation. You have one minute to do so. Go!”****老师: “现在大家有1分钟的时间来完成这个模型。”**Students make the landform.* Get the students’ attention.

**T: “Remember, there are two types of arches- weather eroded and water eroded. Weather eroded ARCHES are formed when the sandstone is eroded by the rain water and win, cracking and crumbling rocks until they eventually cut through. Water eroded ARCHES are formed when a stream wears away and penetrates the rock. When I say go, I want Partner 1 to turn to Partner 2 and use your model to explain how the two types of arches are formed. Go!”****老师：“记住：拱分为由风化侵蚀形成和由水侵蚀形成的两种。被风化侵蚀的拱通常是由沙石形成，这些沙石在雨水和风的侵蚀下破碎、剥落最终造成拱的倒塌。被水侵蚀的拱通常是被流经的小溪慢慢地侵蚀岩石而形成的。现在我说开始，伙伴1用模型给伙伴2解释湖泊是如何形成的，开始”**Students use their models to explain.*S1: Weather eroded arches are formed when the rain water and wind crack and crumble the sandstone until it cuts through. Water eroded arches are formed when a stream wears away the rock.***学生：被风化侵蚀的拱，它们的沙石在雨水和风的侵蚀下破碎、剥落最终造成拱的倒塌。被水侵蚀的拱通常是被流经的小溪慢慢地侵蚀岩石而形成的。****T: “Great, now when I say go, I want Partner 2 to turn to Partner 1 and use your model to explain how the two types of arches are formed. Go!”****老师：“非常好，现在我说开始，伙伴1用模型给伙伴2解释湖泊是如何形成的，开始”**Students use their models to explain.*S2: Weather eroded arches are formed when the rain water and wind crack and crumble the sandstone until it cuts through. Water eroded arches are formed when a stream wears away the rock.***学生：被风化侵蚀的拱，它们的沙石在雨水和风的侵蚀下破碎、剥落最终造成拱的倒塌。被水侵蚀的拱通常是被流经的小溪慢慢地侵蚀岩石而形成的。****T: “Excellent. We know that there are two types of arches- weather eroded arches are made of sandstone and are affected by the rain water and wind as they erode the sandstone. Surface cracks crumble and flake until the rock eventually cuts through creating holes that get bigger with rock falls and further weathering. Water eroded arches are worn away by streams and get bigger over time.”****老师：非常好。拱分为由风化侵蚀形成和由水侵蚀形成的两种。被风化侵蚀的拱通常是由沙石形成，当沙石层出现裂缝时，雨水和风就会带走暴露的岩石层使得裂缝变得更大，而冰冻以及融化交替作用使得疏松的砂石破碎、剥落，最终所有的沙石都会消失而形成一个个的洞，而岩石的坠落和风化又使这些洞变得更大，最终拱就会倒塌，剩下的拱璧也会在一段时间后被侵蚀。被水侵蚀的拱通常是被流经的小溪慢慢地侵蚀岩石而形成的。*** Post the picture of the lake.

**T: “This is a Blowdown Lake in British Columbia, Canada. It is in a crater! There are a number of natural processes that can form lakes. When Earth’s plates lift and make a mountain range, it can create a bowl-shaped depressions that accumulate water and form lakes. Also, glaciers can scrape depressions in the surface where water accumulates.”****老师：“这是位于英国、哥伦比亚和加拿大的排污湖，它位于火山口之上！有很多种自然的力量能够形成湖泊。当地球板块上升时就会形成山脉，而水就会聚集在山脉边缘碗状的凹陷内从而形成了湖泊。冰川也能形成碗状的凹陷，使得水聚集从而形成湖泊”*** Under the document camera, use a piece of clay to make the formation.

**T: “Now, I want you to create this formation. You have one minute to do so. Go!”****老师: “现在大家有1分钟的时间来完成这个模型。”**Students make the landform.* Get the students’ attention.

**T: “Remember, LAKES are formed when the earth’s plates lift and make a mountain range. A bowl-shaped depression is formed and water accumulates. When I say go, I want Partner 2 to turn to Partner 1 and use your model to explain how lakes are formed. Go!”****老师：“地球板块上升时形成了山脉，而水就会聚集在山脉边缘碗状的凹陷内从而形成了湖泊。现在我要伙伴2用模型给伙伴1解释湖泊是如何形成的，开始。”**Students use their models to explain.*S2: Lakes are formed when the earth’s plates move and make mountains, leaving a bowl-shaped depression where water collects.***学生：地球板块移动时形成了山脉，而水就会聚集在山脉边缘碗状的凹陷内从而形成了湖泊。****T: “Great, now when I say go, I want Partner 1 to turn to Partner 2 and use your model to explain how lakes are formed. Go!”****老师：“非常好，现在我说开始，伙伴1用模型给伙伴2解释湖泊是如何形成的，开始”**Students use their models to explain.*S1: Lakes are formed when the earth’s plates move and make mountains, leaving a bowl-shaped depression where water collects.***学生：地球板块移动时形成了山脉，而水就会聚集在山脉边缘碗状的凹陷内从而形成了湖泊。****T: “Excellent. We know that lakes are formed when the earth’s plates lift and make a mountain range, leaving a bowl-shaped depression where water collects.”****老师：“非常好，我们知道：地球板块移动时形成了山脉，而水就会聚集在山脉边缘碗状的凹陷内从而形成了湖泊。”*** Post the picture of the delta.

**T: “This is the Nile River Delta. It is in Egypt! The delta is here, where the river moves into the Mediterranean Sea.”** Point out the delta portion of the picture. “**A delta is a** [**landform**](file:///C%3A%5Cwiki%5CLandform) **where the mouth of a** [**river**](file:///C%3A%5Cwiki%5CRiver) **flows into an** [**ocean**](file:///C%3A%5Cwiki%5COcean)**,** [**sea**](file:///C%3A%5Cwiki%5CSea)**,** [**estuary**](file:///C%3A%5Cwiki%5CEstuary)**,** [**lake**](file:///C%3A%5Cwiki%5CLake) **or another river. Sediment carried outwards into the flat area of water which the river's flow encounters and is set down as the currents slow.”****老师：“这是尼罗河三角洲，在埃及！它就位于尼罗河流入地中海的河口位置。三角洲位于河口，河流从这里流入海、洋、江或是其他的河流。被河水带出的沉积物沉积在河水缓慢流经的平坦的地方而形成的。*** Under the document camera, use a piece of clay to make the formation.

**T: “Now, I want you to create this formation. You have one minute to do so. Go!”****老师: “现在大家有1分钟的时间来完成这个模型。”**Students make the landform.* Get the students’ attention.

**T: “Remember, DELTAS are formed when the mouth of a river flows into a body of water such as an ocean, sea estuary, lake or another river and the water carries the sediment outwards. It collects in a flat area of water as the currents slow. When I say go, I want Partner 1 to turn to Partner 2 and use your model to explain how deltas are formed. Go!”****老师：“记住，三角洲位于河口，河流从这里流入海、洋、江或是其他的河流。被河水带出的沉积物沉积在河水缓慢流经的平坦的地方而形成的。**Students use their models to explain.*S1: Deltas are formed when a river flows into a body of water and the sediments collect in a flat area where the current slows.***学生：三角洲就是河水在注入其他水域时，被河水带出的沉积物沉积在河水流缓慢流经的平坦的地方而形成的。****T: “Great, now when I say go, I want Partner 2 to turn to Partner 1 and use your model to explain how deltas are formed. Go!”****老师：“非常好，现在我说开始，伙伴2用模型给伙伴1解释三角洲是如何形成的，开始”**Students use their models to explain.*S2: Deltas are formed when a river flows into a body of water and the sediments collect in a flat area where the current slows.***学生：三角洲就是河水在注入其他水域时，被河水带出的沉积物沉积在河水缓慢流经的平坦的地方而形成的。****T: “Excellent. We know that deltas are formed when the mouths of rivers run into bodies of water and the sediments collect where the water current slows in a flat area.”****老师：“非常好，三角洲就是河水在注入其他水域时，被河水带出的沉积物沉积在河水缓慢流经的平坦的地方而形成的。”****T: “Now, I want you to pick one of your favorite landforms on the board and make it. When you are finished, put it in the middle of your desk, put your hands in your lap, and look up at me. That is how I will know that you are ready to move on. You have 1 minute. Go.”****老师：“现在，请大家选择黑板上你喜欢的地貌并做一个模型。模型做好了就放在桌子中间，把手放在你的腿上，并抬头看我。那我就知道你已经做好了。给大家一分钟的时间，开始。”****Guided Practice: (10 minutes)*** Post your sentence frames on the board.

What landform did you create? 你完成了什么模型？I created a \_\_\_\_\_\_.\_\_\_\_\_\_\_\_\_How is a \_\_\_\_\_\_\_\_\_ formed?\_\_\_\_\_\_\_\_\_是怎样形成的？A \_\_\_\_\_\_\_\_\_ is formed by \_\_\_\_\_\_.\_\_\_\_\_\_\_\_\_是由\_\_\_\_\_\_\_\_\_形成的。**T: “We are going to teach each other how weathering and erosion create these different landforms. Now that you have all made one, we will work with our tables to discuss how they were made in real life. I need you to number off on your tables. Decide who will be 1, 2, 3, and so on. You have 10 seconds to decide. Ready. Go.”****老师：“我们要相互讲解风化和侵蚀是如何构成不同地貌的。大家每人都有一个模型，那么现在我们就以课桌来分不同的小组来讲解风化和侵蚀是如何影响实际生活的。每张课桌的同学都要有个号码从1开始，给你们10秒钟的时间排好号码。”*** Students turn to their neighbors and decide who is 1, 2, 3, etc. Wait ten seconds and regain their attention.

*Use the Modeling Cycle:**Teacher Does:***T:** Refer to the sentence frames as you model the process. **“When I say ‘Go!’ the whole table will turn to person 1 and together ask, ‘Which landform did you create?’ Person 1 will answer ‘I created a \_\_\_\_\_\_\_.’ And tell the group what their formation is. Then, the whole table will turn to person 1 and together ask, ‘How is a \_\_\_\_\_\_\_ formed?’ Person 1 will teach the group using the last sentence frame. He/she will say, ‘A \_\_\_\_\_\_\_\_ is formed by weathering and erosion because\_\_\_\_.’ And then finish the sentence in his/her own words. As you explain, you do the actual weathering and eroding on the clay. Next, the table will ask Person 2 and Person 2 will teach about his/her landform.** **老师：“我说开始，每张课桌的同学都问号码1同学：你完成了什么模型？他就回答：\_\_\_\_\_\_\_,然后告诉整个小组模型的构造。课桌的其他同学继续问：这样的地貌是如何形成的？他就用最后一个句式给伙伴讲解\_\_\_\_\_\_\_是由\_\_\_\_\_\_\_引起的风化和侵蚀造成的。并用自己的话完成其余的句子。当这个同学解释的时候，必须要在粘土上做出风化和侵蚀的动作。接下来就是号码2同学，重复所有前面的步骤。”****I am Person 1 and these are my imaginary table friends.”** (You could refer to a specific table or use multiple puppets, stuffed animals or other objects to represent your table.)我是号码1同学，现在他们就是我的伙伴。* Refer to the sentence frames throughout the modeling cycle.

**T(2): “Which landform did you create?’’** 老师：你完成了什么模型？**T(1): “I created an arch.****老师：拱****T(2): “How is an arch formed?”****老师：拱是怎样形成的？****T(1): “An arch is created by weathering and erosion because the wind blew and moved the dirt around and slowly rubbed on the rock. That broke it down and made the arch.”** As you explain the process, show the students how to explain it using the clay model.**老师：拱是由风化和侵蚀造成的，风吹走了表面的沙土并慢慢使得岩石变得疏松并使其破碎从而形成拱。”** *Teacher Does with Students:** Refer to the sentence frames throughout the modeling cycle. Call on a student to help model the process for you. Have their table help with the first question.

**T *and students on the table*: “Which landform did you create?’’** 老师：你完成了什么模型？*S: I created an arch.* *学生：拱***T *and students on the table:* “How is an arch formed?”***老师：拱是如何形成的。**S: An arch is created by weathering and erosion because the wind blew and moved the dirt around and slowly rubbed on the rock. That broke it down and made the arch.**学生：***拱是由风化和侵蚀造成的，风吹走了表面的沙土并慢慢使得岩石变得疏松并使其破碎从而形成拱。*** Help them explain it using the clay model.

*Group of Students Do:** Find out who is person 2 on that same table and have them model the process for the class asking student 2.

 *S: What landform did you create?**学生：*你完成了什么模型？*S2: I created a cliff.* *学生：悬崖**S: How is a cliff formed?**学生：悬崖是如何形成的。**S2: A cliff is created by**weathering and erosion because the upper parts of the cliff are weathered and the base is worn away. The harder rocks are resistant to weathering and create steep cliffs. The softer rocks erode more easily and create gently sloping cliffs.*学生：我们知道了悬崖是由于风化和侵蚀分别作用于顶部和底部而形成的。陡峭的悬崖是由于坚硬的岩石不断受到风化而形成的。而相对软一些的岩石和断岩由于更容易侵蚀因而会形成比较平缓的悬崖。”*All Students Practice:***T: “That was really well done! I think you are all ready to do this. Make sure that you are listening to the person on your table who is explaining how their landform is made. I will give you 5 minutes. Ready? Go!”****老师“大家做的很好！相信大家都准备好了，一定要认真听小组同学讲解地貌的形成，给大家5分钟时间，准备好了吗，开始。”*** Walk around the room observing and helping where needed. Ensure students are staying in the target language.
* Get the students’ attention and have a few students (who you noticed did well) with different landforms share. Have them show their clay model on the document camera as they share so that the class can see multiple examples.

**Independent Practice: (5 minutes)*** Place the exit ticket under the document camera for the class to see.

**T: “To see if we met our objective, we’re going to complete this exit ticket. It says, ‘What landform did you create?’ to which you will use the complete sentence to respond, ‘I created a \_\_\_\_\_\_\_.’ The second question asks, ‘How is that landform formed?’ to which you will use a complete sentence to respond, ‘A \_\_\_\_\_\_\_\_\_\_ is created of weathering and/or erosion because…’ You will work on this independently. Your papers will be passed out and when I say, ‘Go’ you will write your names and begin. Turn your paper over when you are finished.”****老师：为了检验大家是否完成了学习任务，我们要做个小测试。第一个问题是“你建立了什么模型，大家必须回答，我建立了\_\_\_\_\_\_\_\_\_。第二个问题是：这样的地貌是如何形成的？大家必须回答，\_\_\_\_\_\_\_\_\_是由于…引起的风化和侵蚀形成的。大家必须独立完成，我说开始的时候，大家把试卷传下去，写上姓名开始答题，做完了就把试卷交上来。”*** Pass out the exit tickets to the students.

**T: “Go!”** **老师：开始*** Give students 5 minutes to write their sentences. Walk around the class and ensure students understand the directions and what they are to do. After five minutes, have the students turn in their papers with their finished clay model. When they dry or harden, you can have them paint or color their models and put them on display.

**Closing: (5 minutes)****T: “On the board you will see our learning objective for today. Let’s see if we met our objective.”** **老师：“黑板上写着今天的学习任务，我们来看看大家是否都完成了。”**Point and refer to the objective on the board: I can show the affect of weathering and erosion on different landforms (such as cliffs, arches, a lake and delta) over time by creating a model and explaining how I formed it on an exit ticket independently.**能够通过制作模型来演示风化和侵蚀是如何常年影响不同地貌（如悬崖，拱，湖畔和三角洲）并在退出卡中解释自己如何制造模型的。****T: “When I say ‘go’ you will turn to your partner and you will both read the objective on the board together. Go.”** Give the class 20 seconds.老师：我说开始大家就和伙伴一起读出今天的学习任务。Students read the objective.**T: “When I say ‘go’ Partner 2 will turn to Partner 1 and explain what we learned today in your own words.”****老师：“我说开始，伙伴2用自己的话对伙伴1解释我们今天学到了什么。”***S1: We learned how weathering and erosion changed different landforms such as cliffs, arches, a lake and delta.**学生：***能够解释风化和侵蚀是如何常年影响地貌从而形成拱、悬崖、湖畔和三角洲。*** Get the students’ attention.

**T: “When I say ‘go’ Partner 1 will turn to Partner 2 and explain how we know we met our goals.”** **老师：“我说开始，伙伴1用自己的话对伙伴2解释我们今天学到了什么。”***S2: We wrote on an exit ticket and explained how weathering and erosion made a certain landform.**学生：我们完成测试题，并能解释风化和侵蚀是如何形成特定地貌的。** Call on a high, medium and low student in that order to share what they learned.

**T:** When applicable, ask students the question**, “How do you know that you learned that?”****老师：你们如何知道自己掌握了所学内容？****T: “Okay, just as a final assessment, let’s see how good we feel about what we learned today. When I say ‘Go’ I want you all to give me either a thumbs up, thumbs down or thumbs in the middle to show me how well you think you met the objective today and learned about** evaporation. **If you know a lot about landforms and feel you could teach how they are made to someone else, give me a thumbs up. If you know some things about landforms and feel you could tell me some things give me a thumbs in the middle. If you didn’t learn a lot about landforms and feel you need more help and practice, give me a thumbs down. Ready, Go!”****老师：“好的，今天我们要做的最后一点就是看看我们对自己所掌握知识的评价。当我说开始的时候，如果你觉得你了解了很多有关地貌的知识并能够解释它们是如何形成的请竖起你们的拇指。如果你觉得你了解了一些地貌的知识，并能告诉我相关的一些知识，请将拇指竖起一般。如果你觉得你并没有学到很多的有关地貌的只是并需要更多的帮助和练习时请将拇指朝下。准备好了吗，开始”**Assess the class and their self-assessment and analysis of the understanding of the content.**T: “Great. We’ll continue to practice and learn more about landforms during this unit and throughout the year. I want you to look around and notice all of the different geological shapes around you. We really do live in an amazing place.”****老师：“很好。我们在这一个单元和一整年中都要继续学习练习有关地貌的只是。希望大家注意观察我们身边的不同地貌特质。我们确实生活在一个奇妙的世界里。”** |
| **Assessment:** |
| Observe students in the guided practice and watch for language production and errors in reasoning.Observe clay models.Correct the Exit Tickets |
| **Extra Ideas:** |
| * *You may need to give more direct/specific instruction about the different landforms and how they are made.*
* *Paint and decorate the models*
* *Have them write a story about the landform and how it changed over time.*

*Landform Games:** Help students learn or review landforms by using the landform cards to match the name and picture, place Concentration, or play Pictionary.

How would the Earth look if we didn’t have any weathering, erosion,*Creating Landforms:** Relate the building up and breaking down of the Earth's surface to the landforms they identified. Record answers in their “Earth’s Surfaces” book.
* What probably causes a mesa to form? (uplift)
* What probably causes a butte to form? (weathering and erosion of a mesa)
* Why is the slope more gentle at the base of mesas? (deposition; erosion and weathering break the rocks down and the material is deposited at the base.)
* What landform does a volcano create? (mountain)
* How long does it take for all this to happen? (A long, long time. The deposits that forms the rocks of the Grand Canyon are 300 million years old. The uplift that started the erosion that formed Bryce Canyon started 13 million years ago.)
 |

|  |
| --- |
| Cliff悬崖 |
| Arch拱 |
| Lake湖泊 |
| Delta三角洲 |

Exit Ticket 测试

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 姓名 Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_日期

What landform did you create?

你建立的什么模型？

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How was this landform formed?

这种地貌是如何形成的？

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Exit Ticket 测试

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 姓名 Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_日期

What landform did you create?

你建立的什么模型？

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How was this landform formed?

这种地貌是如何形成的？

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Exit Ticket 测试

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 姓名 Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_日期

What landform did you create?

你建立的什么模型？

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How was this landform formed?

这种地貌是如何形成的？

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.