

Earth's Changing Surface

Lesson 1: Our Land

Grade: 2	Length of lesson: 65 minutes	Placement of lesson: 1 of 6 lessons in the Earth's changing surface lesson series.
Unit Central Questions: What does the surface of Earth look like? Does it ever change?		Lesson Focus Questions: What does the land look like? Does it have different shapes?
Main learning goal: The land has many different types of landforms and bodies of water.		
Science content storyline: The natural landscape on Earth has many different features. We call these different features, landforms. Natural landforms are different from the things that people build on top of the land, such as homes, schools, buildings, and roads. Landforms include mountains, hills, plateaus, valleys, plains, or canyons. Landforms also include bodies of water, such as lakes, rivers, deltas, and features that are formed where the oceans meet land, such as bays and peninsulas [Note: bays, peninsulas, gulfs, and islands are not explicitly included in this lesson series, but may come up as student ideas].		
Ideal student response to the Focus Question: There are many types of landforms in our area, such as mountains, hills, valleys, canyons, plateaus, and plains. Landforms also include bodies of water, such as lakes, ponds, rivers, and deltas. <i>Assessment boundary: Include the following landforms and bodies of water: mountains, valleys, canyons, plateaus, hills, plains, rivers, lakes, and deltas.</i>		

Preparation

MATERIALS NEEDED	AHEAD OF TIME
<p>Teacher Masters:</p> <ul style="list-style-type: none"> • Lesson 1 PowerPoint • 1.3 Landforms Picture cards – 1 laminated set for a word wall <p>Student Handouts:</p> <ul style="list-style-type: none"> • 1.1 Landforms Labels – 1 set per group • 1.2 Landforms Picture cards – 1 laminated set per group • Blue plastic tablecloths – 1 per group • 3 bags of play sand – dampened and divide equally among groups. <p>Other Materials:</p> <ul style="list-style-type: none"> • Sink or place for students to wash hands after activity • Crayons or colored pencils 	<ul style="list-style-type: none"> • Review the Content Background document. • Prepare all handouts. • Create a Word Wall using the Landforms cards. Note: Delta is part of the Word Wall, but not part of the Student Picture Cards and Labels for the activity. • Arrange desks into groups of four students and place a blue plastic tablecloth across each desk. Pour some damp play sand into the middle of the plastic tablecloths and then close the tablecloth around the sand so that students do not see the sand until the activity. Watch this video for an example: https://www.youtube.com/watch?v=pp2HZPB9YRA

Lesson 1 General Outline

Time	Phase of lesson	How the Science Content Storyline Develops
5 min	Introduction: Teacher introduces the Unit Central Questions: <i>What does the surface of Earth look like? Does it ever change?</i>	There are many ways to describe Earth’s surface.
5 min	Lesson Focus Question: Teacher introduces the Lesson Focus Questions: <i>What does the land look like? Does it have different shapes?</i> Students make initial descriptions of the features of the land in their local area.	
12 min	Setup for Activity: Teacher prepares students to distinguish between the shape of the natural land and the things that are on top of the land.	The natural landscape on Earth has many different features. We call these different features, landforms. Natural landforms are different from the things that people build on top of the land, such as homes, schools, buildings, and roads.
25 min	Activity: Using sand, students shape the land into different landforms.	Landforms include mountains, hills, plateaus, valleys, plains, or canyons. Landforms also include bodies of water, such as lakes, rivers, deltas, and features that are formed where the oceans meet land, such as bays and peninsulas
10 min	Follow-up to Activity: Students think about and draw the landforms they see in their community.	Landforms include mountains, hills, plateaus, valleys, plains, or canyons. Landforms also include bodies of water, such as lakes, rivers, deltas, and features that are formed where the oceans meet land, such as bays and peninsulas
7 min	Summarize and Synthesize: The students and teacher summarize the key science ideas in the lesson.	There are many different landforms.
1 min	Link to Next Lesson: The teacher links to the next lesson with the idea that landforms are different in other places.	Landforms can be different from one place to another.

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5 min	<p>Unit Central Question</p> <p><u>Synopsis:</u> Teacher introduces the Unit Central Questions: <i>What does Earth’s surface look like? Does it ever change?</i></p> <p><u>Main Science Idea:</u> There are many ways to describe Earth’s surface.</p>		<p>Today, we begin a unit that will help us think about the questions: <i>What does the surface of Earth look like? Does it ever change?</i> We will keep these questions central in our minds as we complete the science lessons over the next week.</p> <p>First, let’s talk about what we mean by Earth’s surface. What do you think I mean by “Earth’s surface?”</p> <p>Ok, so we think that Earth’s surface is the outermost part of the Earth. Could we say it is the part that we see?</p> <p>I’m going to show you some pictures of Earth’s surface and I was you to tell me what you see.</p> <p>NOTE TO TEACHER: <i>Using the Lesson 1 PowerPoint, display different photos of Earth’s surface for students to think about. The photos focus on landforms and bodies of water, but students might also include ideas about things people have built, such as cities and roads. It is ok for them to include human-made features at this point, but later in the lesson you will want to</i></p>	<p>Maybe the top of Earth?</p> <p>Like the surface of the oceans. The top part.</p> <p>Yeah, like the outer part of it.</p> <p>Yes!</p>	<p>What do you mean by “top of the Earth”?</p>

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		Ask questions to elicit student ideas and predictions	<p><i>distinguish landforms and bodies of water from the human-made features on Earth's surface.</i></p> <p>Look at these photos. How would you describe the surface of Earth by what you see in the photos?</p>	<p>There are lots of mountains.</p> <p>It is flat.</p> <p>There are lots of trees and plants.</p> <p>There is water.</p>	
5 min	<p>Focus Question</p> <p><u>Synopsis</u>: Teacher introduces the Lesson Focus Questions: <i>What does the land look like? Does it have different shapes?</i> Students make initial descriptions of the features of the land in their local area.</p>	Set the purpose with a <u>focus question</u> or goal statement.	<p>So we agree that there are many ways to describe the surface of Earth. The surface is made up of all the land and all of the things on the land. When we look at the land around our school and community we see things that people have made – buildings and roads and bridges, and we also see the natural land itself.</p> <p>Now we will just think about the natural land itself – the land that buildings and roads are built on. Our community is built on this natural land. But, <i>What does the land look like? Does it have different shapes?</i> These are our focus questions for today.</p> <p>NOTE TO TEACHER: Write the focus questions on the board (or use the PowerPoint) and then refer to them</p>		

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			<p><i>throughout the lesson.</i></p> <p>Does anyone have ideas about how to describe what the land looks like in our area?</p> <p>NOTE TO TEACHER: <i>Students will likely suggest natural features such as trees or mountains, but many will also include human-made features. Try to probe their thinking about how they see the human-made features as part of the natural land. You do not need to correct them at this time, but try to emphasize the natural land itself and not the human-made features on the land. One goal of the lesson will be to clarify for students the difference between landforms and bodies of water and the features on Earth's surface made by people.</i></p>	<p>There are mountains here.</p> <p>There are lots of roads and houses.</p> <p>I see lots of trees outside.</p>	<p>What kind of land are the roads and houses built on? How would you describe the land?</p>
12 min	<p>Set up for Activity</p> <p><u>Synopsis:</u> Teacher prepares students to distinguish between the shape of the natural land and the things that are on top of the land.</p> <p><u>Main science ideas:</u> The natural landscape on Earth has many different features. We call these different features,</p>	<p>Make explicit links between science ideas and activities (before the activity).</p>	<p>Before we begin today's activity, let's think about the differences between the natural land and the things that people have built on the land. I will show you some pictures and I want you to decide whether it is the natural land or something built on the land by people.</p> <p>NOTE TO TEACHER: <i>Show the Lesson 1 PowerPoint and ask students to respond as "natural land" or "built by people". Be sure to use this time to clarify with students the difference between the natural landscape and the built environment made</i></p>		

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	<p>landforms. Natural landforms are different from the things that people build on top of the land, such as homes, schools, buildings, and roads.</p>	<p>Ask questions to elicit student ideas and predictions.</p>	<p><i>by people. Also students might be confused about the land itself (landforms) and things that grow on the land, such as trees and grass. The purpose of the set-up is to clarify for students that landforms are the shape that the land itself takes, and does not include things that grow on the land or things that are built by people.</i></p> <p>Scientists call the features of the natural land, landforms. What do you think the word landform means?</p> <p>Mountains are a good example of a landform. So we think a landform is made out of land. Do others agree? Are there other examples of landforms – or things made out of the land?</p> <p>This is a really good idea! Trees and grass and flowers are all things that grow on the land. They need the land to live. But they</p>	<p>Things that are formed out of the land.</p> <p>Things like mountains.</p> <p>A hill.</p> <p>A tree.</p> <p>A tree grows out of the land.</p> <p>It is growing on the land.</p>	<p>What do you mean by “formed out of the land”?</p> <p>Why do you think a tree is a landform? Can you tell me more about that idea?</p> <p>So is the tree the land itself or something growing on the land?</p>

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			<p>are not the land itself, right? They are not made of land?</p> <p>That’s right, they need the land to grow. But today we are going to talk just about the land. Not the things on the land.</p> <p>So today we will learn more about landforms, or the different ways the land is shaped. Landforms include all the ways the land rises high above the ground and all the ways s it cuts into the ground. Someone said mountains earlier and hills too, but there are lots of different types of landforms we will learn about this week. Here is our word wall with pictures and words for the landforms we will learn about this week.</p> <p><i>NOTE TO TEACHER: Pass around a set of Landforms Picture Cards and Landform Labels to each group of students. Also, point to the Landforms Picture Cards that are part of a Word Wall. Note that “Delta” is not included in the student set. Deltas will be important for Lesson 5, but are not critical for students right now.</i></p> <p>Today you get to be landform builders and you will shape the land into the landforms that we see on our cards. In order to be good landform builders though we need to think about the shape of the landforms we are going to build!</p> <p>Let’s look at the pictures of landforms first</p>	<p>No, but they need to the land to grow.</p>	

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			<p>and think about their shape and how we might build it. Look at the picture of a Mountain. How would you describe the mountain?</p> <p><i>Note to Teacher: When you say “shape” many of your students might think about geometric shapes, such as triangles, circles, and squares. If your students begin down this path, try to help them think about other types of shapes, such as rising high above the ground (the ground being where they stand), or cutting into the ground. Or being flat, curvy, or steep. It is important for them to think about the shape of the landform now so that they can mold the sand into that shape during the activity.</i></p> <p>So, a mountain has steep side that rise up and come to a point. That’s very helpful to know before we build it!</p> <p>Ok, what about other landforms? How would you describe a plateau?</p> <p>NOTE TO TEACHER: Spend a few more minutes letting students describe each landform they will build. You do not need an exhaustive description about each one.</p>	<p>It’s rocky.</p> <p>It is pointy.</p> <p>It comes to a point, like this [students makes gesture with hands coming to a point]</p> <p>Yes.</p> <p>It’s like a mountain too, but it doesn’t have a point.</p> <p>It’s flat. It goes up high too, but this the top is flat like the point was cut off.</p>	<p>Can you tell me what you mean by pointy?</p> <p>Ok, so you think a mountain has steeper sides that rise up to a point, right?</p> <p>How would you describe the top of it?</p> <p>Ok, so a plateau has steep sides like a mountain, but it is flat on top.</p>
25 min	<p>Activity</p> <p><u>Synopsis:</u> Using sand, students shape the land</p>	Select a content representation or model	Ok, so today you will build these landforms out of sand. Kind of like building a sandcastle, but you will build mountains, hills, canyons, and valley		

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	<p>into different landforms.</p> <p><u>Main science ideas:</u> Landforms include mountains, hills, plateaus, valleys, plains, or canyons. Landforms also include bodies of water, such as lakes, rivers, deltas, and features that are formed where the oceans meet land, such as bays and peninsulas.</p>	<p>matched to the learning goals and engage students in their use.</p>	<p>instead!</p> <p>Open the blue tablecloth on your table and spread it out so that it covers all of your desks. Then smooth out the sand carefully so that you have a smooth surface to work with.</p> <p>This sand is your land that you have to work with. Using the sand, you will shape it into all the different landforms you see on your <i>Landform Picture Cards</i>. After you create a landform, put the right landform label onto it. For example, when you create a hill, take the label card for “hill” and put it on top of your hill.</p> <p>Use the pictures to help you make the landforms. As a team you need to make all of the landforms, but you can divide them up so that each of you are working on one landform at a time. Ask your table members to help if you are not sure how to make one of the landforms. Do you have any questions?</p> <p>NOTE TO TEACHER: <i>As students work, circulate among the groups and ask students about the landforms they are creating, and specifically how they are shaping the land. Ask, “How did you decide to build the canyon” “Did you cut into the land?”, “Does it have steep sides?”, “Is this landform rising high above the ground, or is it cutting into the ground?” These types of questions will help students think about the shapes of the</i></p>		

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			<p><i>landforms they are building.</i></p> <p><i>Also, remind students to brush the sand off onto the tablecloth for easier clean-up!</i></p>		
10 min	<p>Follow-up Activity</p> <p><u>Synopsis:</u> Students think about and draw the landforms they see in their community.</p> <p><u>Main Science Idea:</u> Landforms include mountains, hills, plateaus, valleys, plains, or canyons. Landforms also include bodies of water, such as lakes, rivers, deltas, and features that are formed where the oceans meet land, such as bays and peninsulas.</p>		<p>Ok, now that we have built all these wonderful landforms, I want you to think about which ones you see in our community.</p> <p>I want you to think about all the landforms we have learned about today. Open your science notebook and take a few minutes to draw a quick sketch of the landforms you see in our community. Choose three landforms to draw and label them.</p> <p>NOTE TO TEACHER: <i>This activity builds on students' ideas about landforms by having them transfer their thinking of the landform pictures and the sand landforms into their a drawing of the landforms in their community. They should narrow down the landforms to three that they can see in the Pomona area. At this point they should be able to distinguish between the landforms and things on the land (e.g., buildings, trees, flowers, roads).</i></p> <p>Ok, does anyone want to share what landforms you see in our community? What did you draw?</p>	<p>I drew mountains!</p> <p>I think it is flat too.</p> <p>Plains.</p> <p>I drew some trees on the land.</p>	<p>And what do we call flat areas again?</p> <p>Are tree landforms? Tell me why you</p>

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					think so.
7 min	<p>Summarize/Synthesize</p> <p><u>Synopsis:</u> The students and teacher summarize the key science ideas in the lesson.</p> <p><u>Main science ideas:</u> There are many different landforms.</p>	Highlight key science ideas and focus questions throughout.	<p>Let's think back to our lesson focus question: <i>What does the land look like? Does it have different shapes?</i></p> <p>What do you think? Look at the landforms you built out of sand and our drawings. Turn to your elbow partner and take a moment to talk through your ideas. Be ready to share with the class.</p> <p>NOTE TO TEACHER: Give the students two minutes to talk.</p> <p>Ok, who would like to share their thinking? What does the land look like? Does it have different shapes?</p> <p>So we think the land has all different kinds of shapes. Some of them stick out of the land, like mountains and hills, and other landforms carve into the land, like rivers and canyons.</p>	<p>We think the land is bumpy and has all kinds of shapes.</p> <p>Well the mountains and hills come out of the land and make bumps.</p> <p>A river carves into the land.</p>	<p>Can you tell me why you think it is "bumpy"? Point to your landforms.</p> <p>Are there types of landforms that you carve into the land rather than stick out?</p>

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		Summarize key science ideas.	<p>Let's summarize!</p> <p>Today we learned that our land has many different shapes. We call these different shapes of land, landforms. Landforms also include bodies of water that are part of the land. We have names for these landforms. Can anyone tell me some of the landforms that rise high above the ground we are standing on? [<i>gesture with your hands to show something high above the ground</i>]</p> <p>What about landforms that are about the same level? [<i>gesture with your hands to show something flat or level</i>]</p> <p>What about landforms that cut into the ground? [<i>gesture with your hands something carving down into the ground</i>]</p>	<p>[Students may say mountains, hills, plateaus]</p> <p>[Students may say plains, lakes, rivers, deltas]</p> <p>[Students may say valleys, canyons , rivers]</p>	
1 min	<p>Link to Next Lesson <u>Synopsis:</u> The teacher links to the next lesson with the idea that landforms are different in other places.</p> <p><u>Main science ideas:</u> Landforms can be different from one place to another.</p>		<p>Now we know that there are ways to describe our land. We call those things, landforms.</p> <p>Next time we will think about whether landforms look the same everywhere, or if they look different from one place to another.</p>		

