
EROSION
STATIONS
THE SCIENCE PENGUIN

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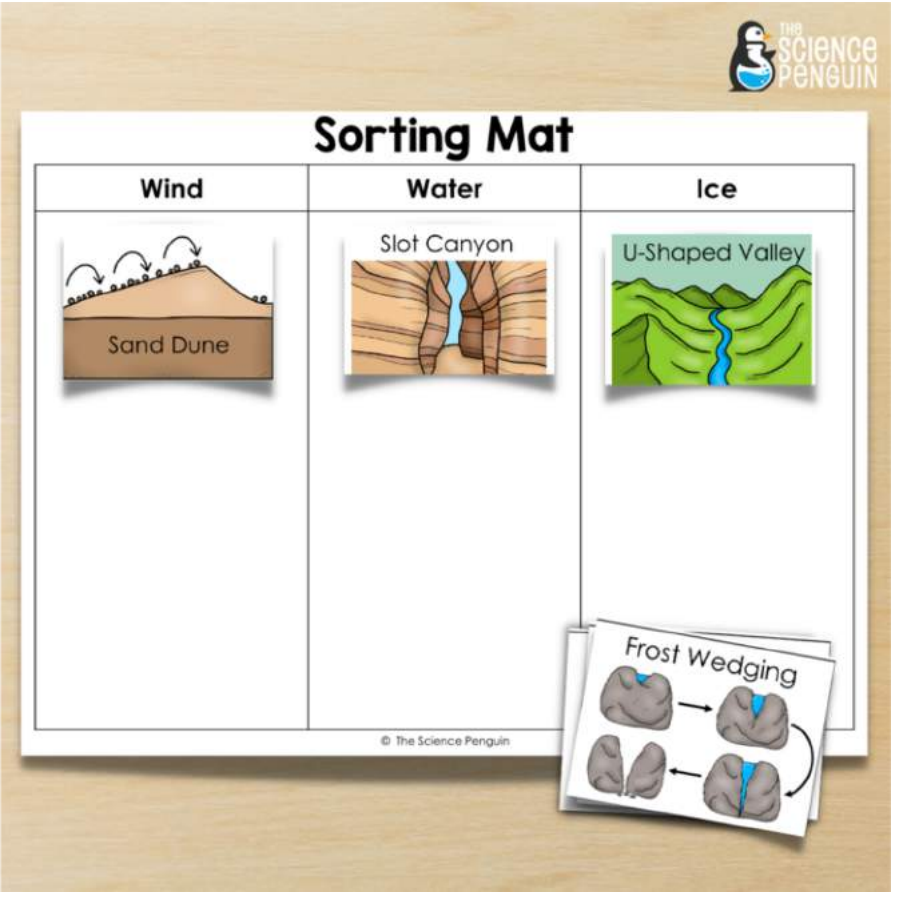
Science Stations

Table of Contents

Erosion



Science Stations

Getting Started

Erosion

Suggested Uses

Learning Stations
Use all nine or just a few as learning stations that students complete at their own pace.

Whole Class
Use the activities in a whole class format.

Small Group
Use the activities in a small group of students who need acceleration or intervention.

Science Center
Keep a few stations in your science center.

9 Stations

1. Read It
2. Watch It
3. Explore It
4. Create It
5. Match It
6. Draw It
7. Sort It
8. Explain It
9. Analyze It

Teacher Prep

- ✓ Choose a Student Sheet option and make copies
- ✓ Set up stations using the Materials List on the following page
- ✓ Decide how you want students to complete the stations
- ✓ Be sure students start with Read It and Watch It if the material is new to them

Science Stations

Materials

Erosion

I recommend making multiple copies of each station, especially Read It and Watch It since students often start with those stations to introduce the information.

Station	Materials
Read It!	Directions, passage copied front and back
Watch It!	Directions, easy way to link students to the videos (QR codes and links included), electronic devices with internet and sound
Explore It!	Directions, tray with high sides with the bottom covered in sand, safety goggles, paper straws cut in half
Create It!	Directions, diagram mat, cards in a baggie
Match It!	Directions, cards in a baggie
Draw It!	Directions, colored pencils
Sort It!	Directions, sorting mat, sorting cards
Explain It!	Directions, info page
Analyze It!	Directions

Science Stations

Answer Key

Erosion

Read It!

Text: Changing Land

1. What are three agents of change responsible for changing landforms?

   Wind, water, and ice

2. According to the text, what are 3 landforms created by wind?

   Sand dunes, mesas, and aeolian arches

3. According to the text, what 2 landforms are created by glaciers?

   U-shaped valleys and moraines

4. According to the text, what landform is formed by deposition at the mouth of a river?

   Delta

5. U-shaped valleys and canyons are both formed by weathering and erosion. What is another landform that is created due to weathering and erosion?

   Possible answers: mesas, arches, or cliffs

Watch It!

Watch the video and answer the questions below.

Weathering & Erosion Video

1. What change to Earth's surface is represented by the superhero, Breaker?

   Weathering

2. What change to Earth's surface is represented by the superhero, Whoosh?

   Erosion

3. What process breaks down rock into sediment?

   Weathering

4. What process moves sediment to a new place?

   Erosion

5. What are the 3 causes of physical weathering listed in the video?

   Wind, water, temperature

6. What process drops sediments and rocks in a new place?

   Deposition

Explore It!

Draw a diagram of your model before and after it was acted upon by wind.

Sand Dune Model

Pictures should include labels and the formation of sand dunes

Science Stations

Answer Key

Erosion

Create It!

Complete the diagram then describe each process below.

Canyon Formation

Over a very long time, rivers gradually weather and erode rock, leaving a canyon with tall, steep sides.

Sand Dune Formation

Sediments are eroded and deposited in hills to form dunes.

Frost Wedging

Water in the crevice of a rock freezes and expands then thaws. Repeated freezing and thawing weathers the rock.

Match It!

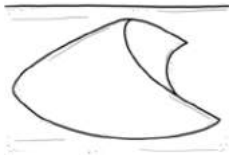
Match the cards then complete the table for each landform card.

Landform	Wind, Water, or Ice?	Weathering & Erosion or Deposition?
Delta	Water	Deposition
Wide, U-shaped Valley	Ice	Weathering and Erosion
Canyon	Water	Weathering and Erosion
Cliff	Water	Weathering and Erosion

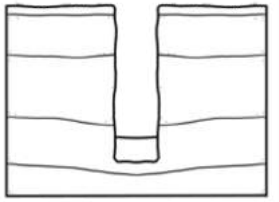
Draw It!

Draw a detailed illustration of each landform.

Sand Dune

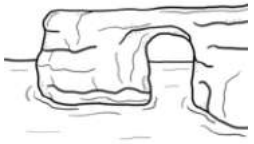


Canyon

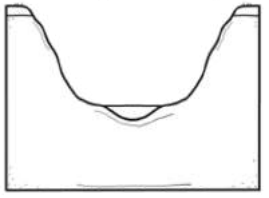


Mesa

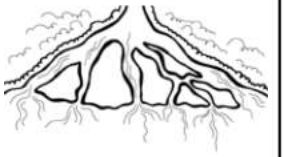
Sea Arch



U-shaped Valley



Delta



Science Stations

Answer Key

Erosion

Sort It!

Sort the cards then write the terms in the table.

Agents of Change

Wind	Water	Ice
Aeolian arch	Delta	Frost wedging
Wind weathering	Slot canyon	U-shaped valley
Sand dune	V-shaped valley	Glacial erosion

Explain It!

Observe the image and answer the questions.

1. Why is the beach grass important to this area?

   The roots help hold sand in place

2. Why is the sand fence important to this area?

   It keeps sand from moving freely

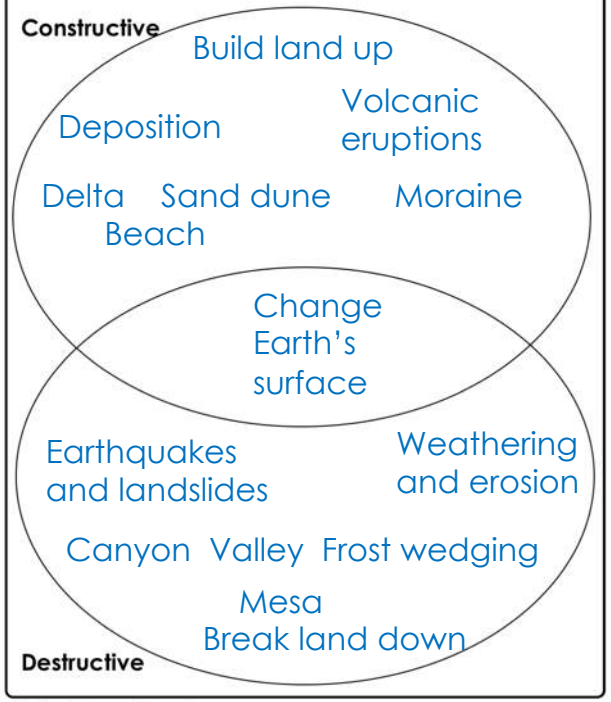
3. What might happen if the fence were removed and people were permitted to walk and drive golf carts on the sand dunes?

   Sand would move freely and the dunes would change frequently. The sand on the beach might erode away due to wind or water.

Analyze It!

Read the card and compare constructive and destructive forces using a Venn diagram.

Comparing and Contrasting Constructive and Destructive Forces



Science Stations

Stations

Erosion

There are 9 stations included. I recommend making multiple copies of some stations.

Read It!	Read about Earth's changing landforms due to wind, water, and ice.
Watch It!	Watch a video and answer questions.
Explore It!	Use a straw and sand to model the formation of sand dunes. Draw a diagram of the model.
Create It!	Use information provided to build diagrams that show canyon formation, sand dune formation, and frost wedging.
Match It!	Match four landforms to a description of how they are formed. Then complete a table.
Draw It!	Draw pictures of 6 landforms– sand dune, canyon, mesa, sea arch, U-shaped valley, and delta.
Sort It!	Sort processes as occurring due to wind, water, or ice.
Explain It!	Observe and explain a photograph that shows precautions taken to prevent beach erosion.
Analyze It!	Compare and contrast constructive and destructive forces.

Read It!

1. Read the passage.

2. Answer the questions on your Student Sheet.

Changing Land

Landforms, natural features on Earth's surface can change due to wind, water, and ice. Wind, water, and ice are **agents of change.**

Wind

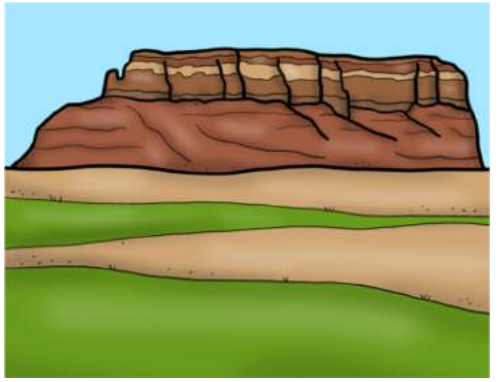
Wind changes Earth's surface. Wind can weather rock, erode sediments, and deposit sediments in a new place. Wind forms sand dunes and desert rock formations.

Sand dunes are formed when wind erodes sand particles and deposits them to form a hill of sand. This usually occurs on beaches and in deserts.

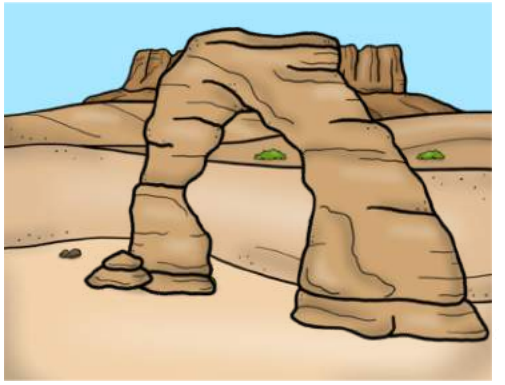
When fierce winds and rain hit rock formations like **mesas** and **aeolian arches** in a desert over time, the rock weathers and sediments erode away.

Sand Dune

Mesa



Rock Arch



Water

Waves and moving water in rivers cause weathering, erosion, and deposition. Moving water forms canyons, deltas, sea arches, and cliffs.

A **canyon** forms over millions of years as a river weathers sediments from the rocks on its side.

Rivers often deposit sediments at the **mouth** (end) of the river. **Deltas**, triangular-shaped collections of sediments are formed at the mouth of a river due to deposition.

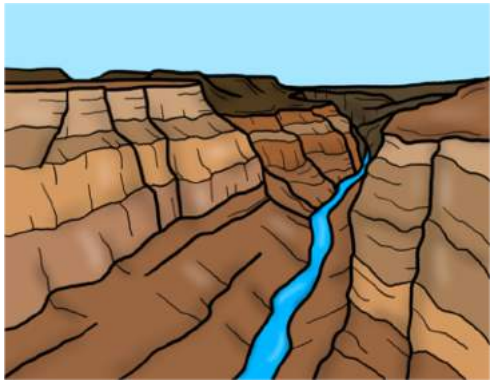
Ice

Glaciers slowly change Earth's surface. **Glaciers** are huge rivers of ice that usually move only a few inches each year. Glaciers form wide valleys and moraines.

Glaciers create wide, **U-shaped valleys** as they slowly scrape sediments in between mountains.

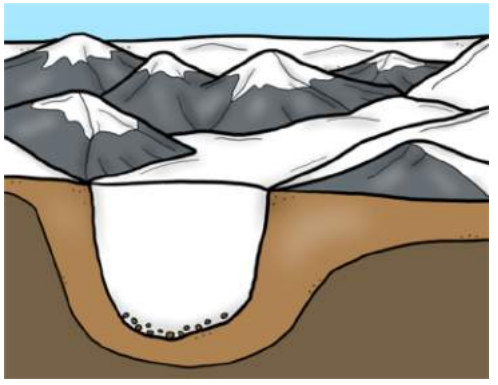
When glaciers deposit sediments and rocks in a new place, they form moraines. **Moraines** are piles of soil and rock left behind by glaciers.

Canyon

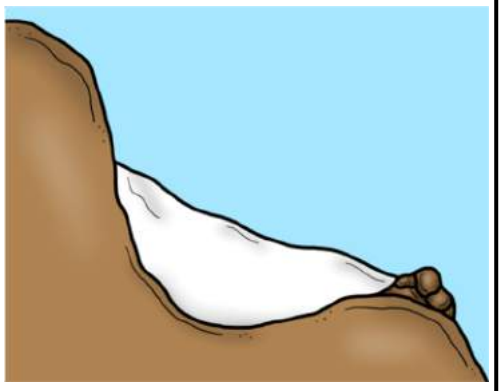


Delta

U-shaped Valley



Glacial Moraine



Read It!

Text: Changing Land

1. What are three agents of change responsible for changing landforms?

2. According to the text, what are 3 landforms created by wind?

3. According to the text, what 2 landforms are created by glaciers?

4. According to the text, what landform is formed by deposition at the mouth of a river?

5. U-shaped valleys and canyons are both formed by weathering and erosion. What is another landform that is created due to weathering and erosion?

Read It!

Text: Changing Land

1. What are three agents of change responsible for changing landforms?

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5. U-shaped valleys and canyons are both formed by weathering and erosion. What is another landform that is created due to weathering and erosion?

Watch It!

Watch the Weathering and Erosion video and answer the questions on your Student Sheet.

http://studyjams.scholastic.com/studyjams/jams/science/rocks-minerals-landforms/weathering-and-erosion.htm

Watch It!

Watch the video and answer the questions below.

Weathering & Erosion Video

1. What change to Earth's surface is represented by the superhero, Breaker?
2. What change to Earth's surface is represented by the superhero, Whoosh?
3. What process breaks down rock into sediment?
4. What process moves sediment to a new place?
5. What are the 3 causes of physical weathering listed in the video?
6. What process drops sediments and rocks in a new place?

Watch It!

Watch the video and answer the questions below.

Weathering & Erosion Video

1. What change to Earth's surface is represented by the superhero, Breaker?
2. What change to Earth's surface is represented by the superhero, Whoosh?
3. What process breaks down rock into sediment?
4. What process moves sediment to a new place?
5. What are the 3 causes of physical weathering listed in the video?
6. What process drops sediments and rocks in a new place?

Explore It!

1. Safety first. Put on your goggles. Keep them on until you leave this station. Use only one straw and dispose of it when done.

2. Without touching the straw to your mouth, gently blow the sand to show the formation of sand dunes by wind.

3. Draw a diagram of your model. Include what it looked like before and after the change.

Explore It!

Draw a diagram of your model before and after it was acted upon by wind.

Sand Dune Model

Explore It!

Draw a diagram of your model before and after it was acted upon by wind.

Sand Dune Model

Create It!

1. Order the cards on the Diagram Mat to show 3 processes:
    - Canyon formation due to weathering and erosion
    - Sand dune formation due to deposition
    - Frost wedging due to the freezing of water and thawing of ice in the rock crevices

2. Complete your Student Sheet.

Slow Changes Diagram Mat

Canyon Formation

Step 1	Step 2	Step 3	Step 4
Flat land with a river	Slightly curved land with a river	V-shaped valley with a river	Canyon with steep, curved sides and a river

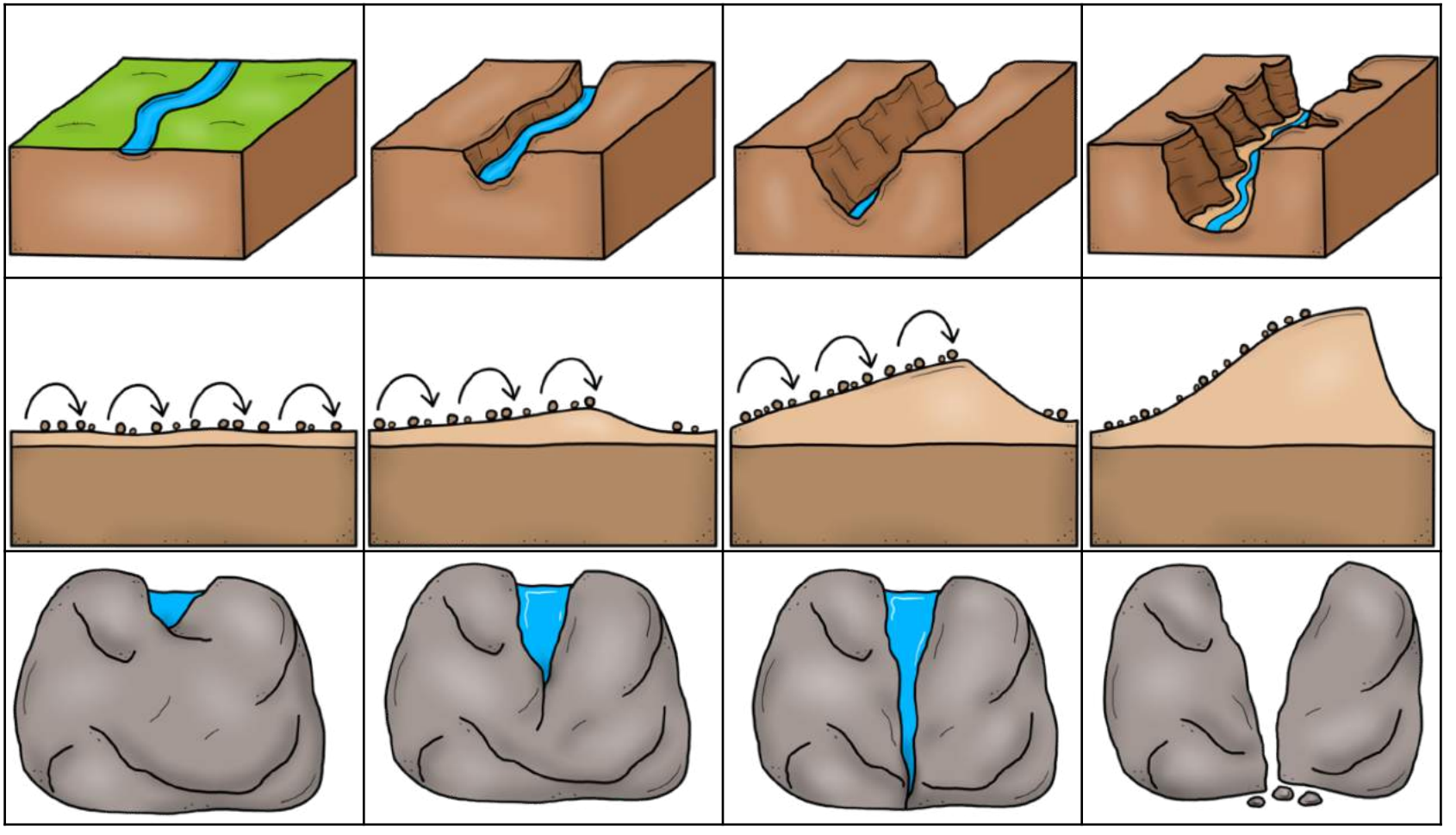
Sand Dune Formation

Step 1	Step 2	Step 3	Step 4
Flat land with arrows showing wind erosion and deposition	A hill begins to form	A hill grows taller	The hill is at its highest and sediments have been deposited

Frost Wedging

Step 1	Step 2	Step 3	Step 4
Frozen water is shown in the crevice of a rock	The rock has cracked a little from freezing and thawing water	The rock cracks some more	The rock breaks into pieces

Create It! Cards



Create It!

Complete the diagram then describe each process below.

Canyon Formation

Sand Dune Formation

Frost Wedging

Create It!

Complete the diagram then describe each process below.

Canyon Formation

Sand Dune Formation

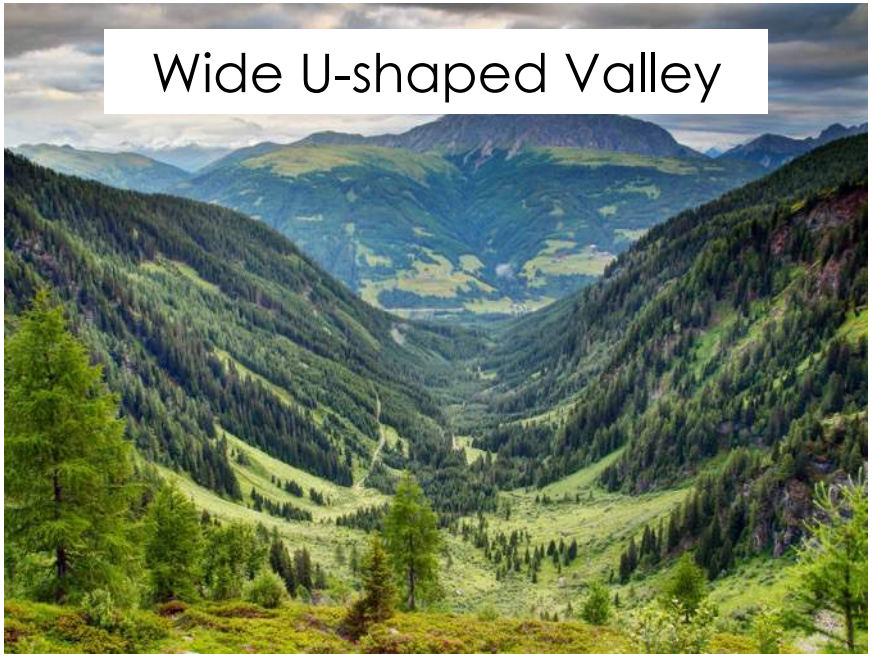
Frost Wedging

Match It!

1. Match each Landform Photo Card to the Description Card that best describes how the landform is made.

2. Complete the table on your Student Sheet. Use the information provided to determine:
   - the agent of change (wind, water, or ice) for each landform
   - whether the landform was created due to weathering and erosion or deposition

Match It! Cards



Match It! Cards

Formed when sediments are deposited at the mouth of a river	Formed when a large, wide glacier slowly moves through the area, weathering rock and eroding sediments
Formed when a river weathers rock and erodes sediments over millions of years	Formed when ocean waves crash against rock for many years

Match It!

Match the cards then complete the table for each landform card.

Landform	Wind, Water, or Ice?	Weathering & Erosion or Deposition?

Match It!

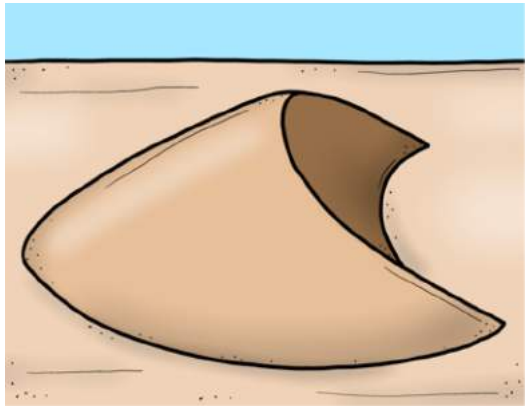
Match the cards then complete the table for each landform card.

Landform	Wind, Water, or Ice?	Weathering & Erosion or Deposition?

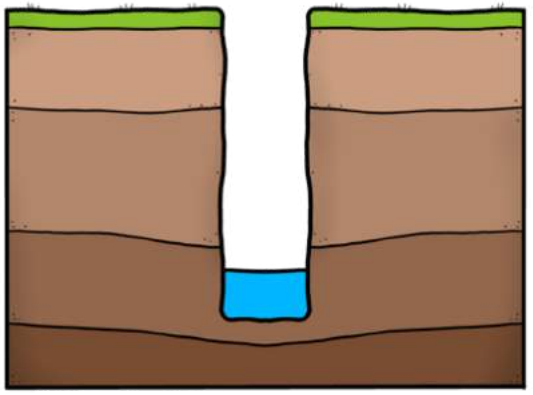
Draw It!

Draw a detailed illustration of each landform.

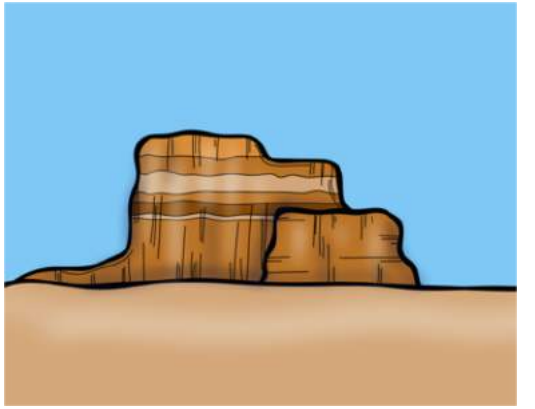
Sand Dune



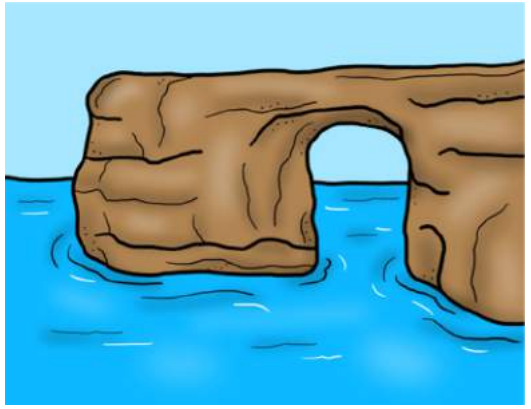
Canyon



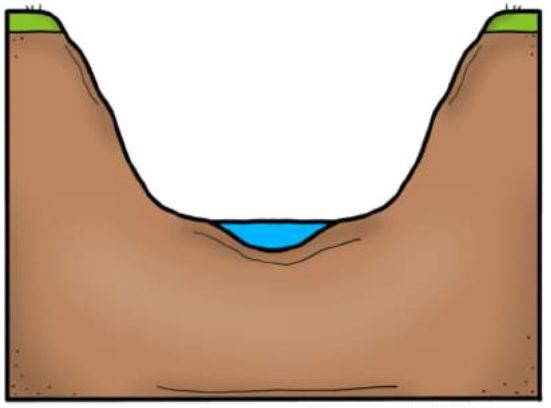
Mesa



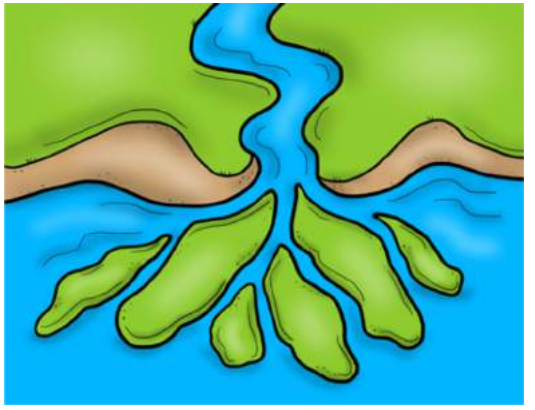
Sea Arch



U-shaped Valley



Delta



Draw It!

Draw a detailed illustration of each landform.

Sand Dune	Canyon
Mesa	Sea Arch
U-shaped Valley	Delta

Draw It!

Draw a detailed illustration of each landform.

Sand Dune	Canyon
Mesa	Sea Arch
U-shaped Valley	Delta

Sort It!

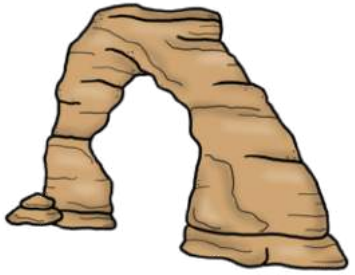
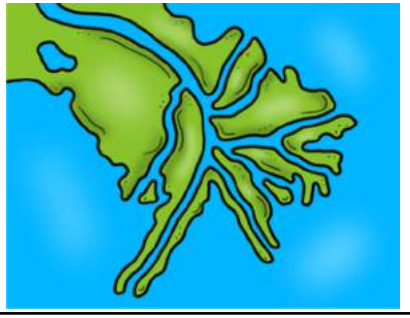
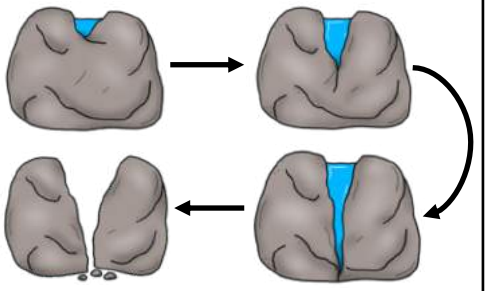
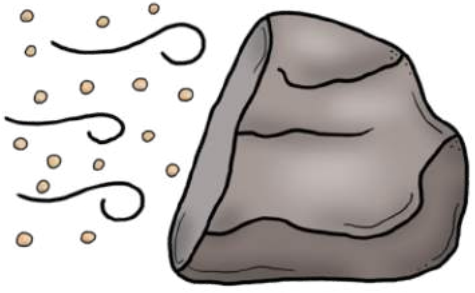
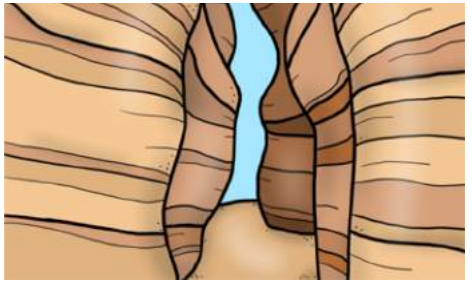
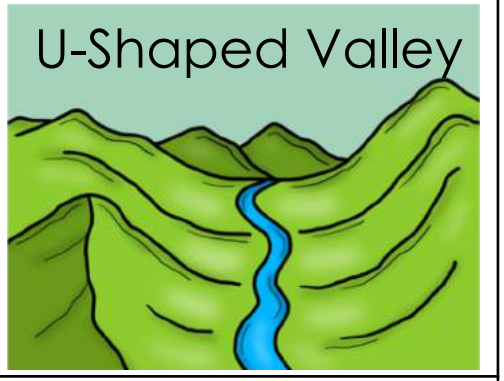
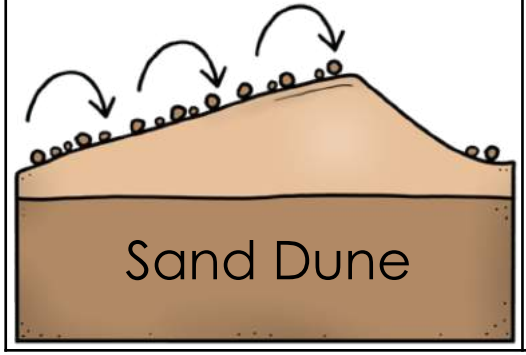
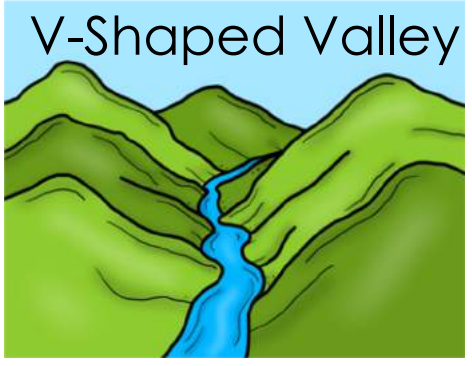
1. Place the sorting cards in the correct column. There will be 3 cards in each column.

2. Use your completed sorting mat to complete the table on your Student Sheet.

Sorting Mat

Wind	Water	Ice

Sort It! Cards

Aeolian Arch 	Delta 	Frost Wedging 
Wind Weathering 	Slot Canyon 	U-Shaped Valley 
 Sand Dune	V-Shaped Valley 	Glacial Erosion 

Sort It!

Sort the cards then write the terms in the table.

Agents of Change

Wind	Water	Ice

Sort It!

Sort the cards then write the terms in the table.

Agents of Change

Wind	Water	Ice

Explain It!

1. Study the image and read the caption.
2. Answer the questions on your Student Sheet.

A family renting a beach house on vacation noticed fences, shrubs, and grasses between the house and the ocean water. A sign said to keep off the dunes.

Explain It!

Observe the image and answer the questions.

1. Why is the beach grass important to this area?

2. Why is the sand fence important to this area?

3. What might happen if the fence were removed and people were permitted to walk and drive golf carts on the sand dunes?

Explain It!

Observe the image and answer the questions.

1. Why is the beach grass important to this area?

2. Why is the sand fence important to this area?

3. What might happen if the fence were removed and people were permitted to walk and drive golf carts on the sand dunes?

Analyze It!

1. Closely read the table .
2. Use this page to complete your Student Sheet.

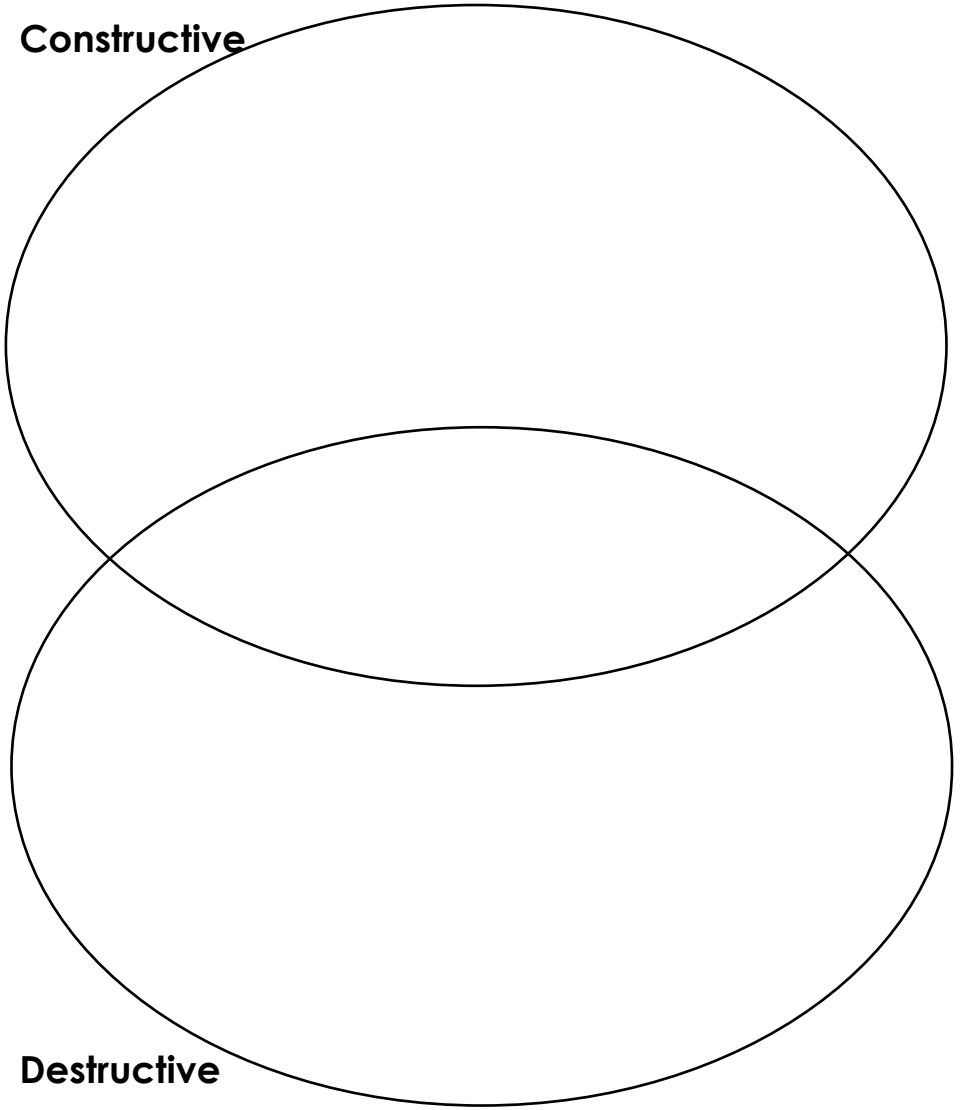
Forces that Change Earth's Surface

	Constructive Forces	**Destructive Forces**
Definition	Processes that build up Earth's surface	Processes that break down Earth's surface
Rapid Changes	Volcanic eruptions add rock to Earth's surface	Earthquakes and landslides break rocks and move sediments
Slow Changes	Deposition	Weathering and erosion
Examples	Deltas, sand dunes, moraines, beaches	Canyons, valleys, frost wedging, mesas

Analyze It!

Read the card and compare constructive and destructive forces using a Venn diagram.

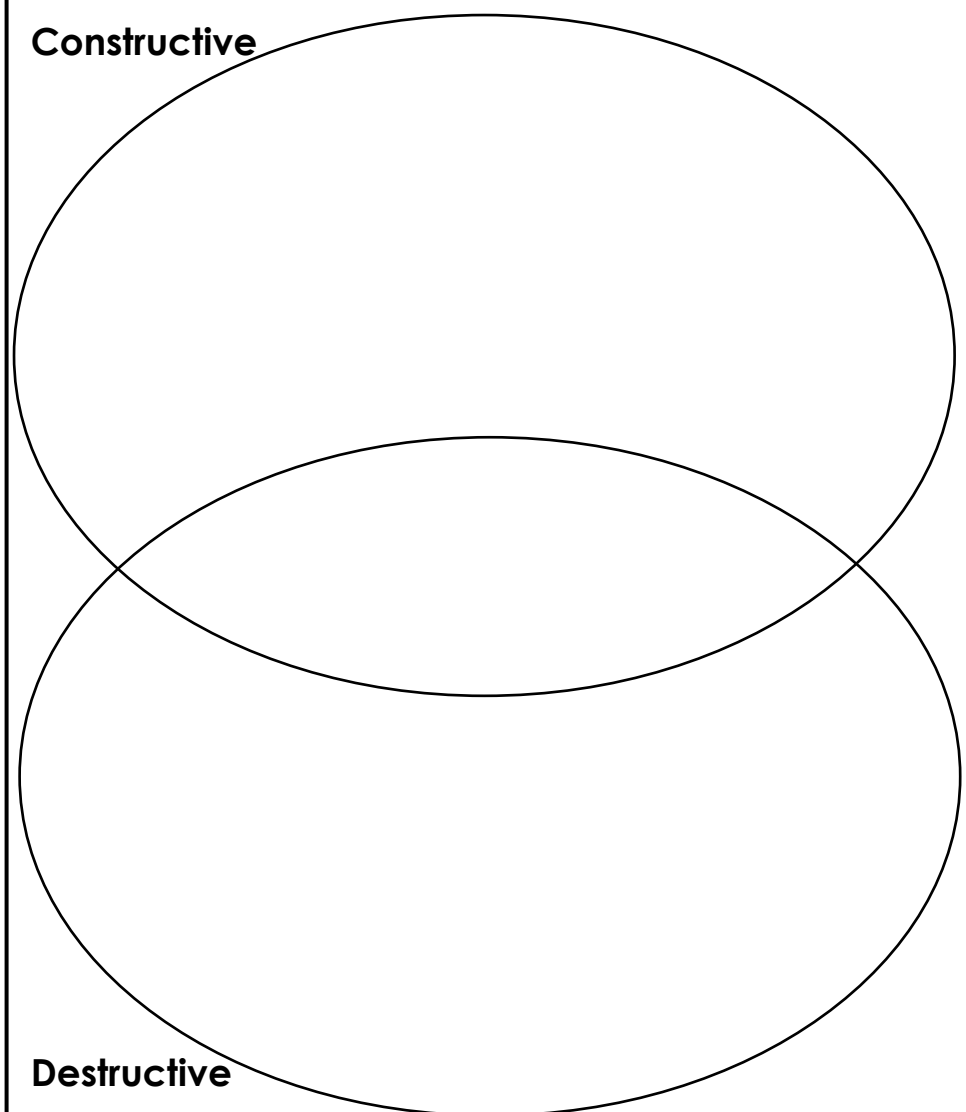
Comparing and Contrasting Constructive and Destructive Forces



Analyze It!

Read the card and compare constructive and destructive forces using a Venn diagram.

Comparing and Contrasting Constructive and Destructive Forces



Science Stations

Student Pages

Erosion

There are 3 options for student work.

Individual Pages
You can choose to print individual pages for each station (provided after each station in the previous pages.)

Booklet for Notebooks
The following pages can be copied front/back and stapled to create a booklet. This option will fit in student notebooks. Each booklet will use 3 piece of paper.

Packet for Turning In
Copy front/back and staple in the corner. This option is quickest and easy for turning in. Each packet will use 3 pieces of paper.

Read It!

Text: Changing Land

1. What are three agents of change responsible for changing landforms?

2. According to the text, what are 3 landforms created by wind?

3. According to the text, what 2 landforms are created by glaciers?

4. According to the text, what landform is formed by deposition at the mouth of a river?

5. U-shaped valleys and canyons are both formed by weathering and erosion. What is another landform that is created due to weathering and erosion?

Match It!

Match the cards then complete the table for each landform card.

Landform	Wind, Water, or Ice?	Weathering & Erosion or Deposition?

Reflect on It!

After completing all stations, answer the question below.

What did you learn? Be specific.

Draw It!

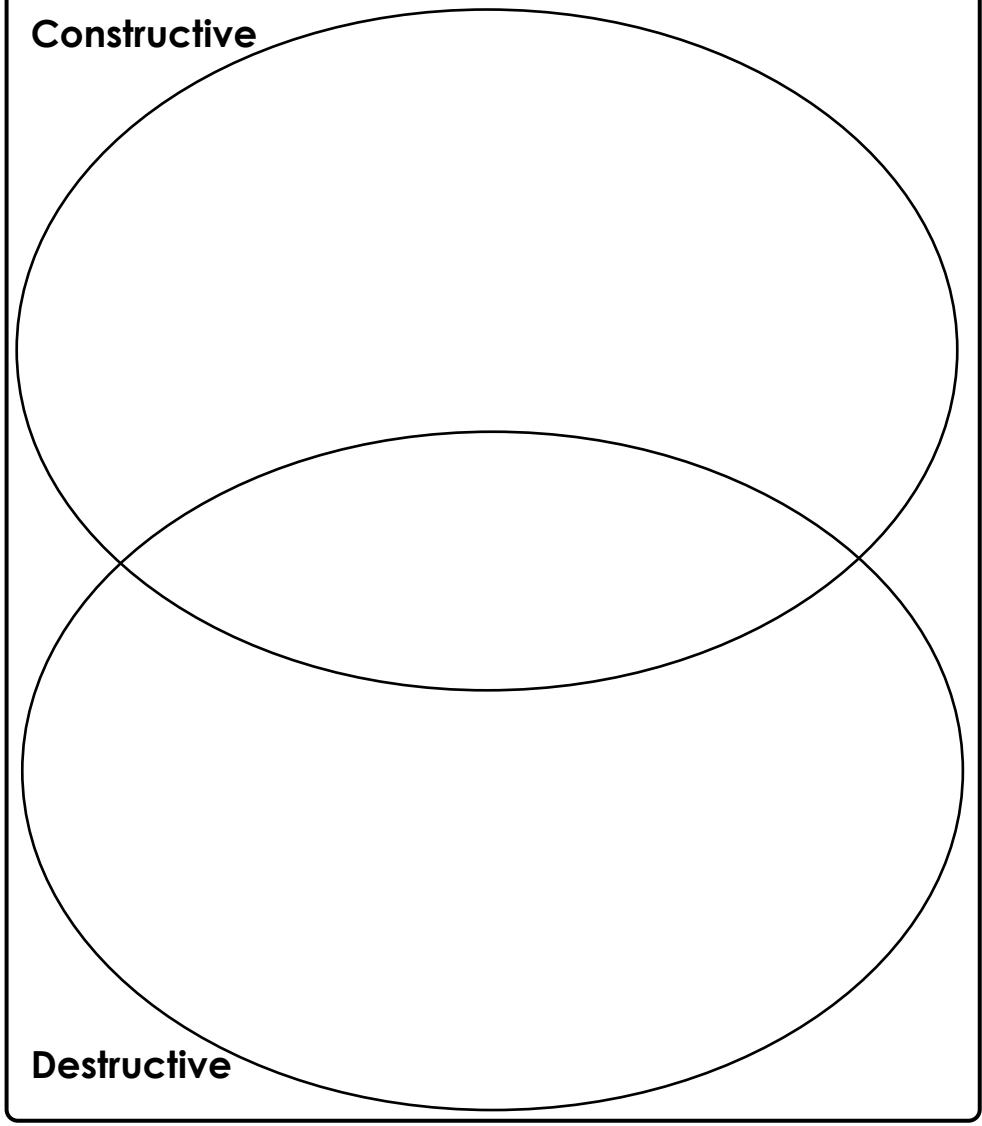
Draw a detailed illustration of each landform.

Sand Dune	Canyon
Mesa	Sea Arch
U-shaped Valley	Delta

Analyze It!

Read the card and compare constructive and destructive forces using a Venn diagram.

Comparing and Contrasting Constructive and Destructive Forces



Explain It!

Observe the image and answer the questions.

1. Why is the beach grass important to this area?

2. Why is the sand fence important to this area?

3. What might happen if the fence were removed and people were permitted to walk and drive golf carts on the sand dunes?

Sort It!

Sort the cards then write the terms in the table.

Agents of Change

Wind	Water	Ice

Explore It!

Draw a diagram of your model before and after it was acted upon by wind.

Sand Dune Model

Watch It!

Watch the video and answer the questions below.

Weathering & Erosion Video

1. What change to Earth's surface is represented by the superhero, Breaker?

2. What change to Earth's surface is represented by the superhero, Whoosh?

3. What process breaks down rock into sediment?

4. What process moves sediment to a new place?

5. What are the 3 causes of physical weathering listed in the video?

6. What process drops sediments and rocks in a new place?

Create It!

Complete the diagram then describe each process below.

Canyon Formation

Sand Dune Formation

Frost Wedging

Science Stations

Optional Signs

Erosion

Print and cut out these signs so students know where to find station materials in the classroom. You can hang them up, label tables, or tape them to baskets of materials.

Read It!

Watch It!

Explore It!

Create It!

Match It!

Draw It!

Sort It!

Explain It!

Analyze It!

CREDITS


Color
Idea
Clip Art


The Painted Crow
Illustrations for Education


EDUCLIPS
Clip Art