Weather's Effect on Earth

2nd Grade Science

Campus Community School

Co-authored by: Jenna Faller, Tina Thompson and Kate Williams

Learning Map for SPDG Integrated Reading/Writing Instructional Task

COVER

Module Title	Weather's effect on the Earth
Overview (brief description)	Compare how climate and geologic events change the earths' surface.
Template Task	Make observations from several sources to construct an evidence-based account for natural phenomena. (2-ESS1-1)
Essential Question (based on the task)	How does weather and geologic events affect the Earth's surface?
Grade Level	2
Content Area(s)	Science: 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

WHAT TASK?
Teaching Task

Background to be shared with students	Through modeling and a close reading activity students will read and learn about volcanic explosions happening quickly and changing the earth's surface as opposed to erosion happening slowly over time. Students will choose and read about one of three different types of geologic event (earthquake, hurricane and tornadoes), complete graphic organizer, They will then complete a Venn Diagram comparing and contrasting their chosen geologic event to either a volcano or erosion. Then they will write a 5 sentence paragraph on their compare/contrast.
Essential Question	How does weather and geologic events affect the Earth's surface?
Texts (print, AV, listening, graphic, etc.): Includes citations, availability, and brief summary of each	Reading A-Z volcanoes and Reading A-Z Erosion (need text on hurricanes, earthquakes, tornadoes) Magic School Bus Rocks and Rolls book and video Volcano video

CCSS Standards

Standards explicitly taught in this module	Prerequisites (standards that are expected to have covered and/or standards that may only be reviewed in this module)
Reading: CC2RI1: Ask and answer such questions as who, what, when, where, why, how to demonstrate understanding of key details in a text. CC2RI3: Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.	CC2RI2 Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text. CC2RI5: Know and use various text features to locate key facts or information in a text efficiently. CC2RI10: By the end of the year, read and comprehend informational text, including:

	history/social studies, science, and technical texts, and the 2/3 text complexity band proficiently, with scaffolding as needed at the high end of the range.
Writing: CC2W.6: With guidance and support from adults, use a variety of digital tools to produce and publish writing, including collaboration with peers. CC2W.7: Participate in shared research and writing projects. CC2W.8: Recall information from experiences or gather information from provided sources to answer a question. CC2W.2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.	CC2W.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including collaboration with peers. CC2W.7: Participate in shared research and writing projects CC2W.8: Recall information from experiences or gather information from provided sources to answer a question. CC2W.2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
Speaking/Listening: CC2SL.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.	CC2SL.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
Language:	CC2L.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use collective nouns b. Form and use frequently occurring irregular plural nouns. c. Use reflexive pronouns d. Form and use the past tense of frequently occurring irregular verbs. e. Use adjectives and adverbs, and choose between them depending on what is to be modified. f. Produce, expand, and rearrange complete simple and compound sentences. CC2L.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize proper nouns c. Use an apostrophe to form contractions and frequently occurring possessives. d. Generalize learned spelling patterns when writing words. e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
Other Content Standards (if relevant)	

WHAT SKILLS

SKILL	Definition/Description
Preparing for the Task	
Activate prior knowledge bridging conversations	What are some geologic events and types of weather happen on earth? What are some severe types of weather? What are their effects on the Earth's surface? What are some other things that can change the Earth's surface?
Analyze task	Discuss with students geologic events and types of weather on the Earth, and how some are quick occurring and that some are slow. Students will be learning how to gather important information and compile evidence to compare types of natural phenomenon.
Comprehension Process	
Prepare for reading/viewing/ listening	Model process for finding the answers to inquiry based questions using a close reading of text. Using vocabulary to build background knowledge. Use guiding questions to focus discussion on the essential question.
Acquire vocabulary	Using word learning strategies like context clues to determine the meaning of an unfamiliar word. Classifying and categorizing words based on types of weathering/geologic event. Apply vocabulary in activities and written work to demonstrate understanding of concepts.
Engage in Active reading/ listening/viewing and note taking	Using graphic organizer to aide in developing their note taking skills to answer guiding questions. Use Post-its to track new learning to later add to their graphic organizer. Going back in the text to highlight supporting details.
Engage in Active reading/ listening/viewing	Know and use various text features to locate key facts or information in a text efficiently.
Transition to Writing	
Analyze demands of writing task	Students will discuss what compare/contrast writing looks like and apply it to their own paragraphs.
Writing Process	
Plan	Using the graphic organizer from earlier in the lesson, students will then take that information and write a compare/contrast piece.
Organize writing	Introduce them to writing informative texts in which they introduce a topic, use facts, vocabulary and definitions to develop points, and provide a concluding statement or section through their graphic organizer.
Develop writing	Using vocabulary correctly to describe/compare two different types of natural phenomena: quick changes to the Earth as opposed to changes over time.
Develop writing	Allow students to compose their pieces with positive guided support as needed.
Revise writing	Students may revise their writing after conferring with the small group and

	teacher.
Edit writing	Allow students to discuss and edit their work after conferring with the small group and teacher.

WHAT INSTRUCTION?

Pacing	Targeted Skill(s)	Formative Assessment(s)	Scoring	Instructional Strategies
Lesson 1. Volcanoes 2 days	1. Ascertain background knowledge about geologic events and how weather affects the Earth's surface. 2. Use an anchor chart to list students' thinking about volcanoes. 3. close reading activity on volcanoes 4. Major volcanoes of the world.	Graphic organizer on volcanoes	Rubric for volcano graphic organizer	*brainstorming *modeling *close activity *guided questions *guided discussion * map of the world * volcano video
Lesson 2: Erosion 2-3 days	1. Ascertain background knowledge about geologic events and how weather affects the Earth's surface. 2. Use an anchor chart to list students' thinking about erosion. 3. Close reading activity on erosion.	Graphic organizer on erosion	Rubric for erosion graphic organizer	*brainstorming * Read Aloud of *Magic School Bus Rocks and Rolls* * Magic School Bus (Rocks and Rolls) video *modeling *close activity *guided questions *guided discussion
Lesson 3: Volcanoes vs. Erosion 4 to 7 days	1. Assessing background knowledge 2. Using organizer to complete Venn Diagram 4. Writing a paragraph with introduction, 2 comparisons comparison, 3 differences, and a conclusion	Venn Diagram Written piece comparing/contrasting volcanoes and erosion	Scoring for Venn Diagram Rubric for writing piece	*direct instruction/modeling on written piece

[Acquisition Lesson Plans will follow this section]

WHAT RESULTS?

Student work samples – annotated

Pre and Post test analysis

Lesson 1: Volcanoes

Prerequisite:

CC2RI2 Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
CC2RI5: Know and use various text features to locate key facts or information in a text efficiently.
CC2RI10: By the end of the year, read and comprehend informational text, including: history/social studies, science, and technical texts, and the 2/3 text complexity band proficiently, with scaffolding as needed at the high end of the range.
CC2SL.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups

Essential Question: *(What question—from your Student Learning Map and based on your standards/grade-level expectations—will direct and focus this lesson?)*

EQ: How do readers use evidence from the text to gain a deeper understanding of volcanoes?

AP#1: Students will think-pair-share while using context clues from the text to figure out why Mt. Vesuvius was dormant.
AP#2: Students will use the text to answer text dependent questions.
AP#3: Students will complete the graphic organizer on Shield Volcanoes independently after teacher gives directions.

Standards:

Science: 2 ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
Reading: CC2RI1: Ask and answer such questions as who, what, when, where, why, how to demonstrate understanding of key details in a text.
CC2SL.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

Activating Strategies: *(How will you hook students at the beginning of the lesson and activate and/or build the necessary prior knowledge?)*

After showing a few pictures from the Volcanoes Book level S (Reading A-Z) ask and tell students that they will be learning about volcanoes which are geologic events (teacher will tell students that a geologic event is something that happens to land on the earth.) that can change or affect the Earth's surface.

Key Vocabulary to preview: *(What content-specific vocabulary will students need to know in order to make meaning of the learning in the lesson?)*

Magma extinct
Volcano
Lava
Plate
Eruption
Crater
Dormant
Geysers
Vents

Materials Needed: *(What specific materials will you need to present this lesson?)*

Reading A-Z level S Volcanoes
Graphic organizer
Pencil

Bill Nye Volcano video:
http://www.dailymotion.com/video/xlafgi_bill-nye-earths-crust_tech

Instructional Plan: *(How will you provide instruction and/or specific learning experiences which lead students to the understanding necessary to respond to each assessment prompt? What will be the sequence of these learning experiences?)*

Instructional Chunk #1:

1. Create an anchor chart titled Volcano; ask students what they know about volcanoes, record on the anchor chart.
2. Teacher will pass out the Reading A-Z level S Volcano book. Conduct a picture walk through the book, noticing the text features and ending up at the glossary. Preview the glossary before reading the book. The teacher will transfer words from the glossary to chart paper which will hang in a prominent place in the classroom for students to refer to while reading.
3. Teacher will have the students turn to the Table of Contents and ask students what the purpose of the Table of Contents is (student answer should be something about the Table of Contents letting the reader know what page they can find a particular heading in nonfiction text).

* It is recommended that when students give answers to each of the questions in this lesson, the teacher will write their answers on the anchor chart that was started earlier in this lesson.

4. The teacher will ask students to turn to page 4. The teacher will read the first paragraph out loud while the students follow along. After reading the paragraph, the teacher will ask students to think-pair-share what clues from the text let the reader know that Mt. Vesuvius was dormant or extinct (AP #1). Teacher should refer students to the vocabulary chart to refresh their memories on what dormant and extinct mean. The teacher will bring the class back together and call on pairs to share their answers with the class. (Possible student answer: the clue from the text is that it had been a thousand years since Mt. Vesuvius had erupted).
5. The teacher will continue reading pages 4, 5, and 6 with students following along. The teacher will then ask students, "Find an example in the text to show how come two cities were completely buried and wiped off the face of the Earth by the eruption of Mt. Vesuvius."(AP#2). Students will be encouraged to think-pair-share and then the teacher will bring the class back together and have different pairs share their findings with the class. (Possible student answers: surge clouds spread dust and ash; the cloud of gas, hot dust, and smoke collapsed onto the ground; buildings collapsed under the weight of the stones and ash).
6. The teacher will read aloud pages 7&8 while students follow along. Teacher should make sure to discuss each of the diagrams to enhance student understanding. The teacher will then ask "How are volcanoes formed?" (AP#2) Students will then be encouraged to think-pair-share while teacher walks around to hear discussions. Teacher should remind students to look back in the text to find the answer. Next the teacher will bring the class back together and have different pairs share their answers with the class. (Possible student answer: The plates in the Earth shift or rub against one another and cause large cracks. Sometimes magma breaks through the cracks and volcanoes form).
7. The teacher will read 9-11 (stop when you get to Composite Volcanoes) while students follow along. The teacher will ask, "Why do different volcanoes erupt in different ways?" (AP#2). Students will then be encouraged to think-pair-share while teacher walks around to hear discussions. Teacher should remind students to look back in the text to find the answer. Next the teacher will bring the class back together and have different pairs share their answers with the class. (Possible student answer: It depends on where and how volcanoes are formed; some erupt gently while others explode with much force).

This would be a good place to end the first day. Teacher should recap things students learned today.

Instructional chunk #2:

8. Today, the class will discuss the vocabulary words on the chart and ask students what they learned about Mt. Vesuvius and how volcanoes are formed?
9. Now the teacher will read pages 11&12. The teacher will then ask, "What can happen when a vent in a volcano is plugged?" (AP#2) Students will then be encouraged to think-pair-share while teacher walks around to hear discussions. Teacher should remind students to look back in the text to find the answer. Next the teacher will bring the class back together and have different pairs share their answers with the class. (Possible student answer: The magma below the plug in the vent builds up and has nowhere to go so the pressure builds. When it the pressure is too much, the volcano explodes).
10. The teacher will read pages 13-15 (stop at Shield Volcanoes). The teacher should comment about how amazing it is that the biggest volcanic ash cloud can travel around the world. Also the teacher should mention how much devastation a composite volcano can cause.
11. Next, the teacher will read pages 15&16 (Shield Volcanoes) while the students follow along. The teacher can then ask the students, "How do shield volcanoes get their name?" (AP#2) The teacher can have students think-pair-share or look for the answer independently. The teacher could have students point to the answer in the text when they find it. The teacher can then call on a student(s) to answer. (Student answer: shield volcanoes have a gentle mountain slope shaped like a shield).
12. Then the teacher will read pages 17-18 while students follow along. The teacher will then ask students to give one fact about cinder cones and one fact about lava domes. The teacher can have the students think-pair-share and then bring the class back together and have pairs share their answers. (Possible student answers: cinder cones are produced by new volcanoes; cinder cones form inside craters; cinder cones are made of loose rocks; lava domes are created when lava oozes from a vent and hardens quickly; lava domes form in other areas where there is volcanic activity.
13. Now the teacher will read page 19 while students follow along.
14. Next the teacher will call on students to read the chart which has a list of all of the things the class knows about volcanoes.

Instructional Chunk #3:

1. The teacher will tell the class that in today's lesson they will be watching Bill Nye's video on Volcanoes. Let's start by looking at our chart from yesterday—what did we learn? Students could do a think-pair-share of the big ideas from the previous lesson; or as whole group.
2. After the video, the teacher will lead a discussion on what details the students heard about volcanoes and these can be added to the anchor chart.
3. Now, have the students pull out their Volcano Reading A-Z book. The teacher will have the students turn to page 11 and look at the heading Shield Volcanoes. Now the teacher will read this section aloud while the students follow along. (The teacher can tell them the purpose for this reading because they are going to fill out an organizer on this section and it is important to reread it in order to refresh their memories).
4. After reading this section, the teacher will hand out the graphic organizer. (AP#3). The teacher should project the organizer either with an Elmo or on a Smartboard. The teacher will read the directions and make sure students understand what to do. The students will then independently

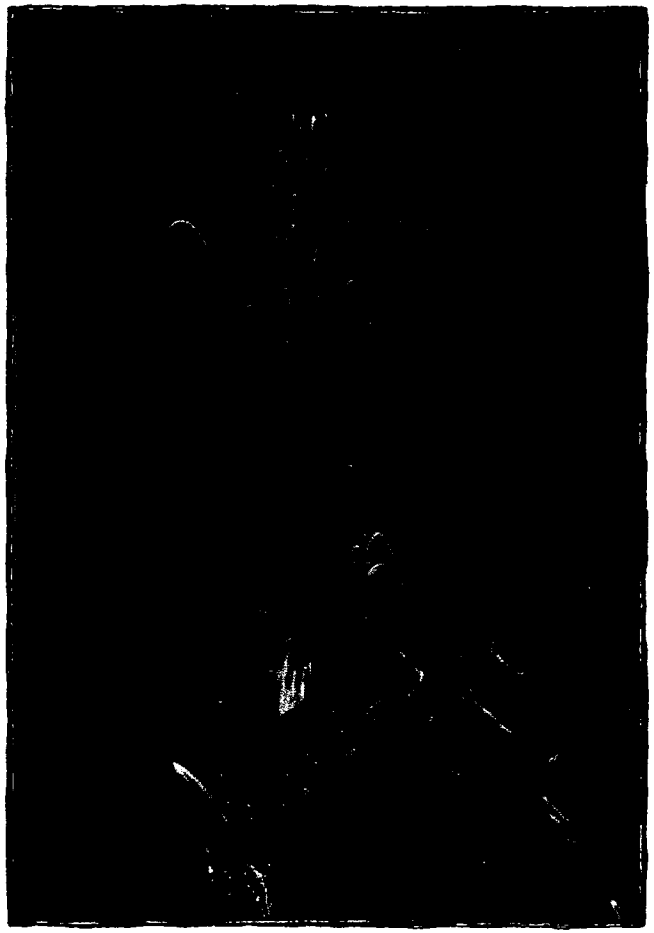
complete the organizer and the teacher will assist students as needed.

5. After giving students time to complete the organizer, the teacher will project the blank organizer on the Elmo or Smartboard, and then ask students to share their answers and record them on the organizer. (Possible answers: Main Idea: Shield Volcanoes are another type of volcano. Details: Shield volcanoes have gentle mountain slopes shaped like shields; the lava from a shield volcano is runny and flows quickly; the lava flows far and fast; eruptions are usually non-explosive; sometimes lava creates a lava fountain; they can remain quietly active for a long time. Summary: Shield volcanoes are a type of volcano that usually has non-explosive eruptions. The lava is runny and flows quickly. The lava flows far and fast. Shield volcanoes have gentle mountain slopes shaped like shields.)

Closure:
The teacher can ask students to turn and talk to a partner and share two things they learned about volcanoes and have students share their partners' answers with the class.

Volcanoes

A Reading A–Z Level S Leveled Book
Word Count: 1,475



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Volcanoes

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Written by Chuck Garofano

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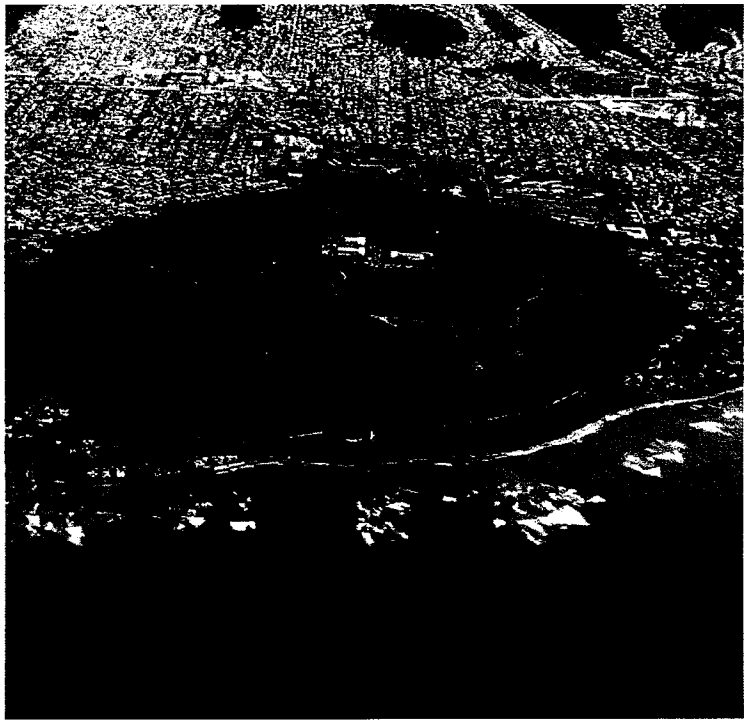


Table of Contents

The Eruption of Vesuvius

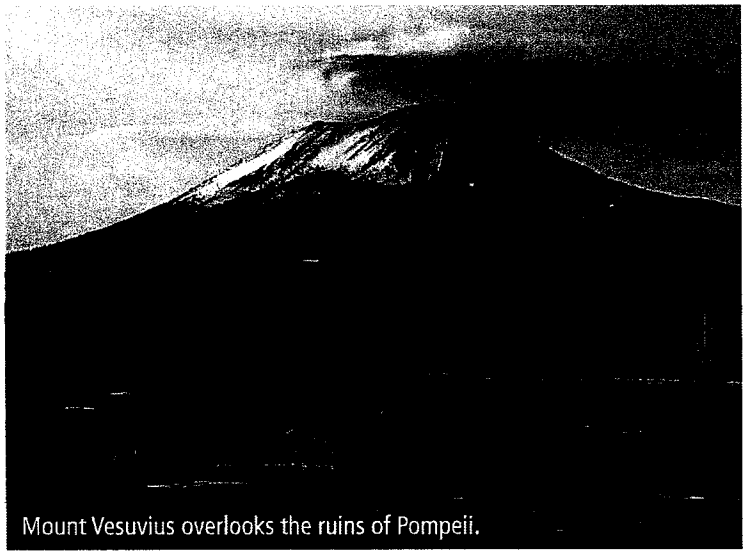
Few people in the Roman city of Pompeii cared about the earthquakes in AD 79. No one connected them with the smoke coming from nearby Mount Vesuvius. The volcanic mountain was covered with trees, flowers, and grass. It had been a thousand years since the volcano had last erupted. Most people thought Mount Vesuvius was **dormant** or **extinct**.

But everything changed on August 24 around one o'clock in the afternoon. A huge explosion shook the ground. Dust, ash, and melted rock blew out of the top of the volcano, darkening the sky. Stones began to rain down on the city. Rocks and ash covered the ground as far away as 16 kilometers (10 mi) from the mountain.

By three o'clock, **lava** (melted rock) began pouring from the volcano, destroying everything in its path. By six o'clock, the cloud of dust and ash was 32 kilometers (20 mi) high. The ash kept falling, covering the ground to a depth of 1 meter (3.3 ft). Buildings collapsed under the weight of the stones and ash.

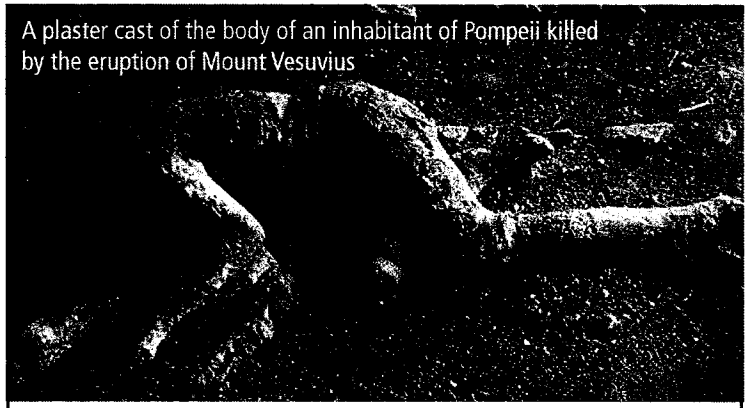
People tried to flee as the volcano destroyed their homes and farms. But the ash was so deep and hot that many people died as they tried to walk through it. Stones falling from the dark sky killed others. And many people choked to death on the ash- and dust-clogged air.

Around midnight, the situation became even worse. The massive cloud of ash, poisonous gas, glowing-hot dust, and smoke had become too heavy to stay in the air. The cloud collapsed, falling down the mountain at speeds of up to 500 kilometers per hour (310 mph).



Mount Vesuvius overlooks the ruins of Pompeii.

Within moments, people in the cities of Pompeii and Herculaneum were burned and buried by Mount Vesuvius's first **surge cloud**. As more dust and ash poured from the volcano, more surge clouds followed. When the eruption ended, two cities were completely buried and wiped off the face of the Earth. They would not be uncovered again for more than one thousand years.



A plaster cast of the body of an inhabitant of Pompeii killed by the eruption of Mount Vesuvius

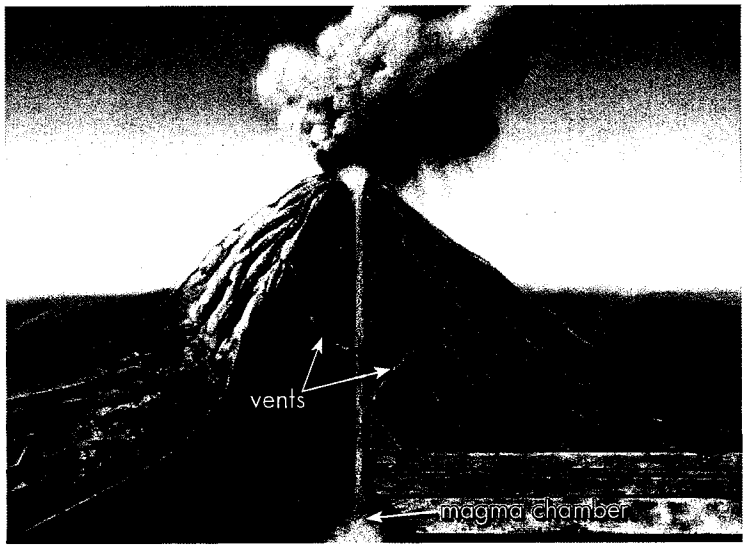
Do You Know?

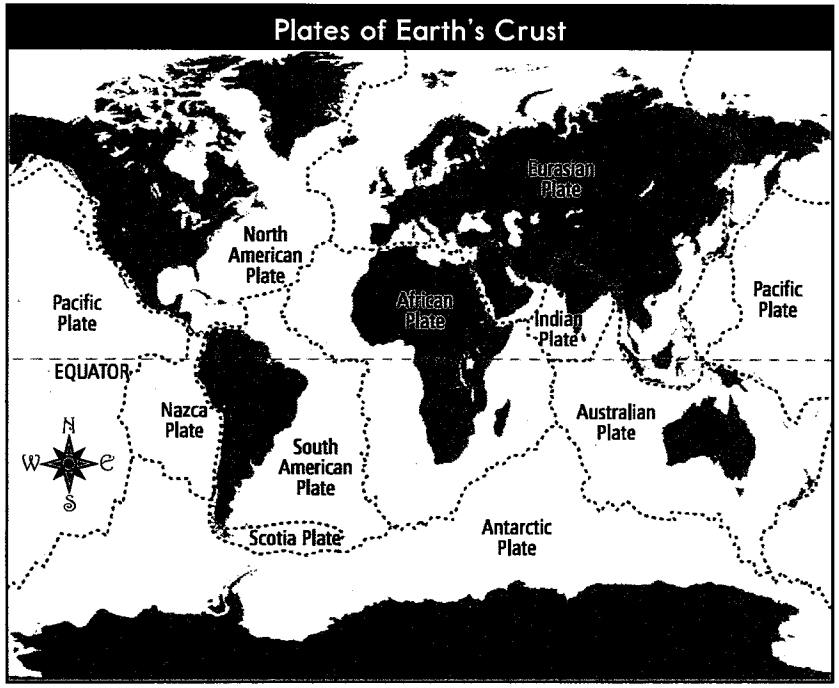
Pompeii, a city not far from Mount Vesuvius, was completely buried by a surge cloud. As the bodies of victims decayed over time, they left pockets of air in the hardened ash and mud that surrounded them. These air pockets preserved the exact shapes of the bodies they once contained. Archaeologists filled the holes with plaster to make casts showing how the people looked when they died.

What you just read is a true story. But how did it happen? What could cause such a violent explosion? The answer lies in how different kinds of volcanoes form.

Where and Why Volcanoes Form

Earth's hard surface, or crust, is made of huge sheets of rock called **plates**. Some plates make up the continents. Others make up the ocean floors. Just under the plates, Earth is extremely hot—so hot that rock melts into a liquid called **magma**. Sometimes the magma flows to the surface and pours out through cracks in Earth's crust.

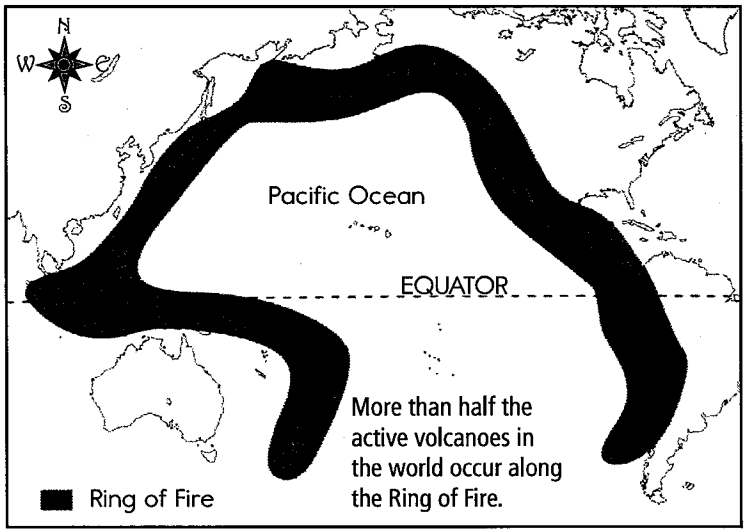




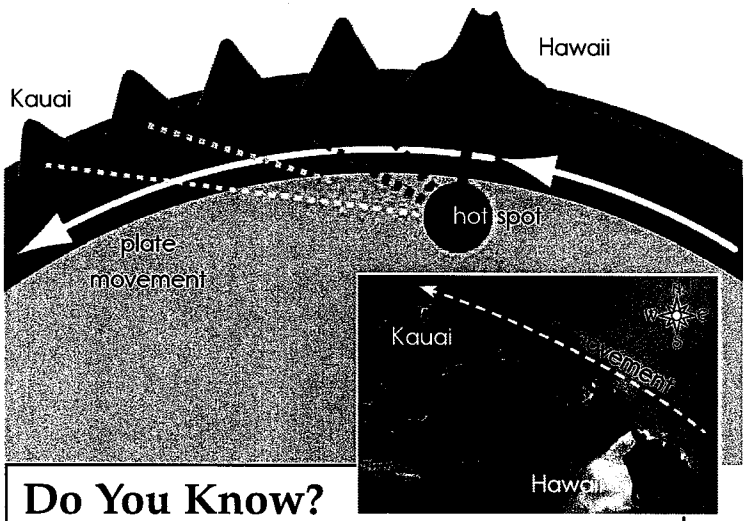
The dotted lines show the edges of the plates. Most of the world's volcanoes are found where the plates meet.

Volcanoes usually form at the edges of the plates. The plates float on top of the thick liquid magma, but the different plates move in different directions. Plates can crash into, pull away from, or grind past each other. The pressure released by the moving plates causes earthquakes, which create large cracks in the crust. Magma sometimes breaks through these cracks to form volcanoes.

There are at least five hundred active volcanoes in the world. Most are near the edges of the plates. The edge of the Pacific Ocean plate is an active volcanic region called the *Ring of Fire*. Another active volcanic region is along the Mid-Atlantic Ridge, an undersea mountain chain in the Atlantic Ocean. Two plates are pulling apart there, allowing magma to push up through the ocean floor and pile up as it cools into solid rock. Over time, the magma forms mountains that stick up out of the water as islands. The country of Iceland is located on the tops of large volcanoes in the Mid-Atlantic Ridge.



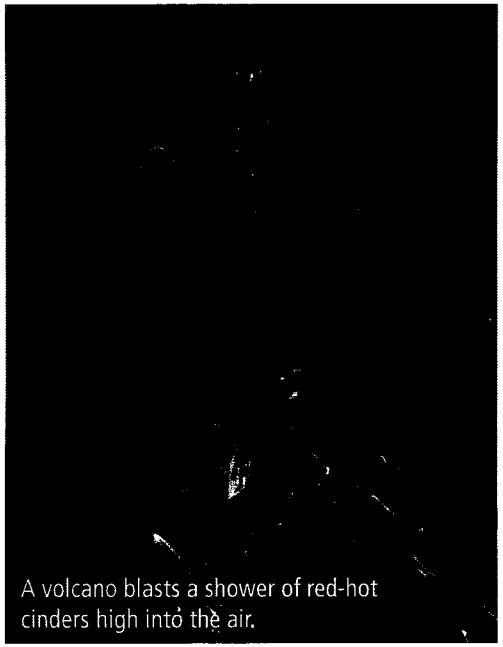
Other volcanoes form far away from the edges of the plates. The islands of Hawaii are in the center of the Pacific Ocean plate. They are above a "hot spot," a place where hot magma sits unusually close to Earth's crust. Beneath Yellowstone National Park, in the middle of the North American plate, another hot spot borders underground lakes. The magma heats the surrounding ground and the water, creating **geysers** and hot springs.



Do You Know?

A "hot spot" created the volcanoes of Hawaii. As the Pacific Plate moves over the top of the hot spot, old volcanoes go extinct and new ones form. It is almost like moving a piece of paper over a burning candle—the candle makes a row of holes, much as the hot spot makes a row of volcanoes.

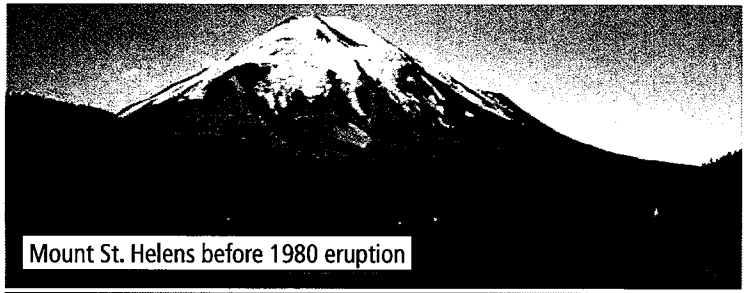
Different volcanoes erupt in different ways, depending on where and how the volcanoes formed. Some volcanoes erupt gently and slowly, while others suddenly explode with the force of many atomic bombs. Let's take a look at different kinds of volcanoes and learn how they erupt.



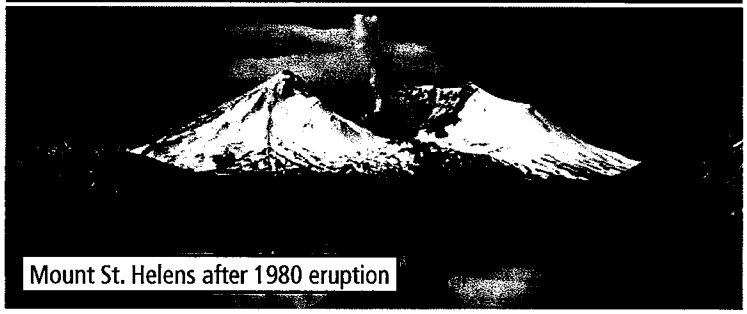
A volcano blasts a shower of red-hot cinders high into the air.

Composite Volcanoes

Mount Vesuvius, which you read about earlier, is a composite volcano. Composite volcanoes are explosive volcanoes. Their eruptions can be violent and destructive. They are usually large mountains with steep sides and evenly shaped peaks, often with a bowl-shaped **crater** at the top. The crater is the place where the magma, hot gas, and ash come out.



Mount St. Helens before 1980 eruption

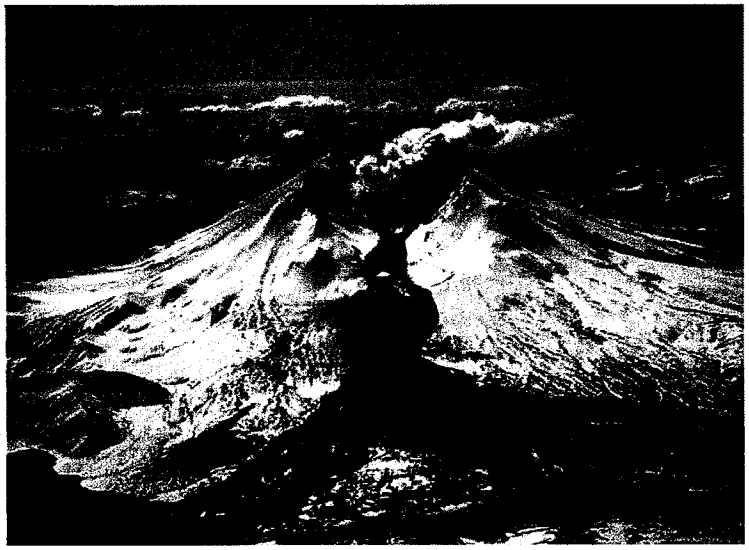


Mount St. Helens after 1980 eruption

Most composite volcanoes form from thick, slow-moving magma. Magma moves in underground tubes called **vents**. When the magma is very thick, it can cool and harden before it reaches the surface, plugging a vent. The magma below the plug suddenly has nowhere to go, so the pressure builds. When the pressure becomes great enough, the volcano explodes. Sometimes the entire mountain is destroyed. When Washington State's Mount St. Helens erupted in 1980, the entire northern side of the mountain was destroyed.

When composite volcanoes erupt, they send huge clouds of ash, dust, smoke, hot gas, and rock into the air. These clouds turn the sky black and rain ash onto the ground. When the cloud becomes too heavy to stay in the air, it collapses in a violent surge cloud.

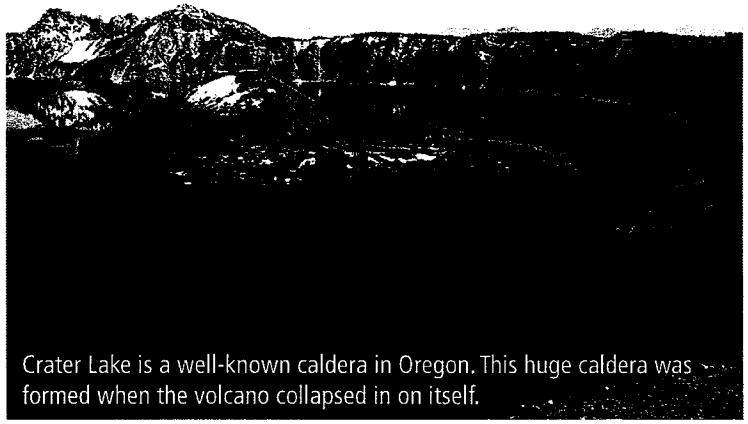
Many composite volcanoes are tall enough to have ice and snow on their tops. A hot explosion can instantly melt all of the ice and snow. A flood of water, mud, and rock then runs down the mountain at up to 100 kilometers per hour (62 mph).



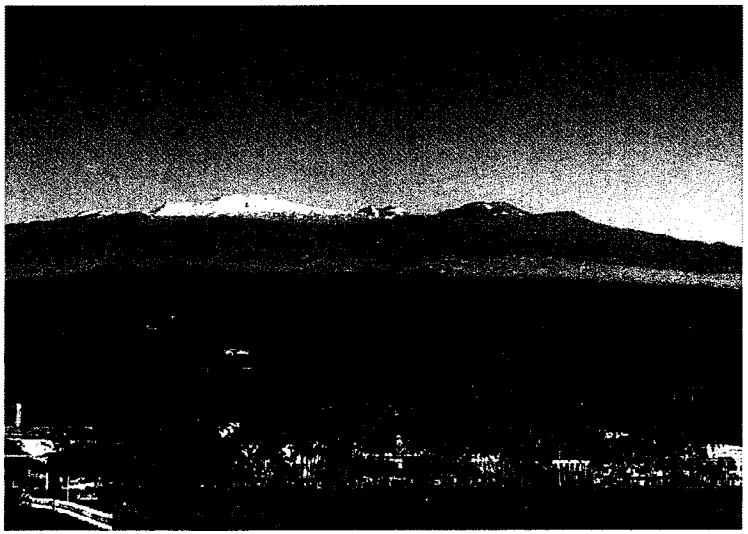
Melting ice and snow sent a massive mudslide racing down the side of this volcano.

The biggest volcanic ash clouds can travel around the world. These clouds can block out sunlight over large areas and cool the planet. After the 1815 eruption of Tambora, a volcano in Indonesia, North America had an unusually cold, snowy summer.

Sometimes, an underground lake of magma pours out of a composite volcano, leaving a huge empty space below. The surface collapses into the empty chamber, leaving a large bowl-shaped **caldera**. Calderas can be as large as 100 kilometers (62 mi) across. They often fill with water, creating large lakes.



Crater Lake is a well-known caldera in Oregon. This huge caldera was formed when the volcano collapsed in on itself.



Mauna Loa, a shield volcano in Hawaii

Composite volcanoes can destroy forests, bury cities, and kill people, but these volcanoes often stay quiet for hundreds of years between eruptions. People living nearby forget that the volcano can explode.

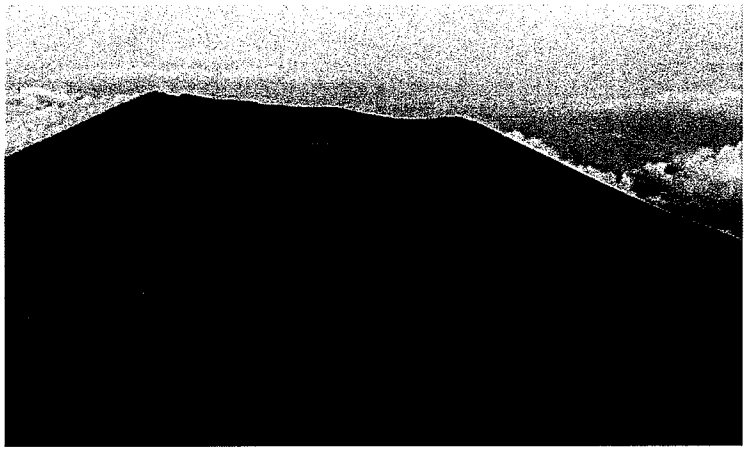
Shield Volcanoes

You may have seen a video of lava flowing or spraying from a volcano. The lava is runny and flows quickly. It flows far and fast before slowly hardening and building up. This kind of lava comes from a shield volcano. Shield volcanoes usually have gentle mountain slopes shaped like shields.

Eruptions of shield volcanoes are usually non-explosive, although the lava can still damage roads, homes, and forests. Sometimes the lava sprays dramatically from the crater, creating a lava fountain.

Shield volcanoes can remain quietly active for a long time and can grow very large. Mauna Loa on Hawaii is the tallest volcano in the world, rising 9,170 meters (30,080 ft) from its base on the seafloor. That's taller than Mount Everest! The largest known volcano in the solar system is Olympus Mons on Mars. This Martian shield volcano rises an amazing 27 kilometers (17 mi) in height.

Olympus Mons, on the surface of Mars, is the largest volcano in the solar system. It would cover the entire state of Arizona.



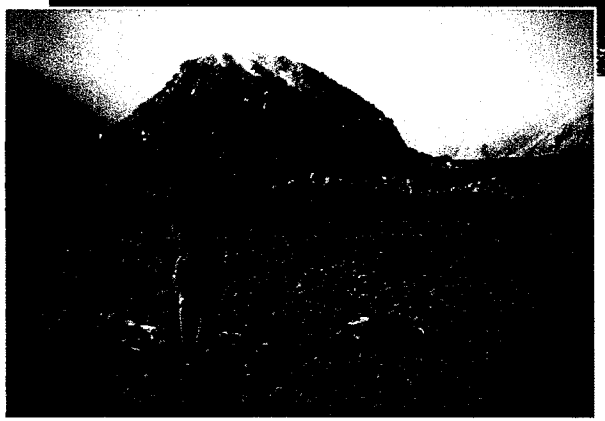
Cinder cones on Mauna Kea volcano, Hawaii

Cinder Cones and Lava Domes

Some volcanoes don't form large mountains. Instead, they just spray small amounts of lava into the air. The small lava chunks and bits of ash harden into light rocks called **cinders**. The cinders pile up around the vent into a hill with a bowl-shaped crater at the top. These hills are called *cinder cones*.

New volcanoes often produce cinder cones. Other cinder cones form inside the craters or calderas of larger, older volcanoes. Most cinder cones erupt only once. Because cinder cones are made of loose rocks, they are quickly worn away by wind and rain.

Small, quick eruptions sometimes form lava domes. Lava domes are created when thick lava oozes from a vent and quickly hardens. Sometimes more lava pushes through the dome, causing its sides to crack. Lava domes often form in areas with other volcanic activity. They can often be found in the craters of large volcanoes. Like composite volcanoes, lava domes often explode violently.

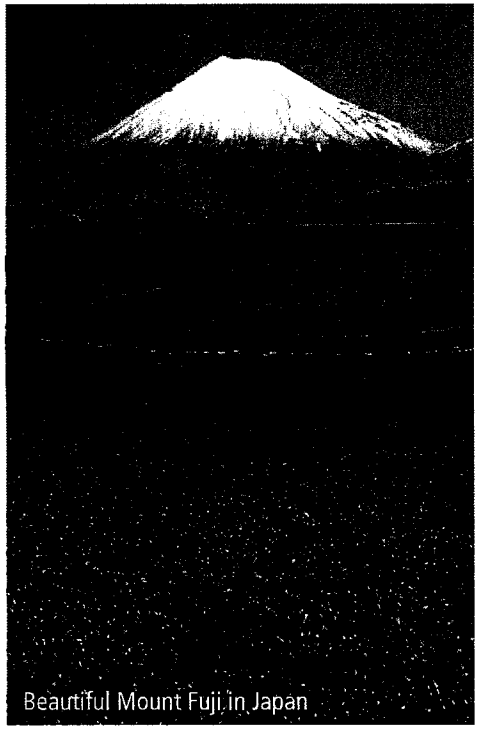


Lava dome atop Novarupta vent, Katmai National Park and Preserve, Alaska (above); a scientist monitoring a lava dome inside a crater

Conclusion

Volcanoes are impressive examples of how our planet is always changing. Many good things come from volcanoes. Lava creates new rock and new land. Volcanic ash makes rich soil for farming. And volcanic mountains, including Mount Fuji in Japan, Mount Rainier in Washington, and Mauna Loa in Hawaii, are some of the most beautiful mountains in the world.

It is no wonder that people often choose to live near volcanoes. But everyone should always remember that volcanoes are dangerous. Volcanoes set free some of Earth's most powerful forces.



Beautiful Mount Fuji in Japan

Glossary

caldera *(n.)* a large, bowl-shaped basin where the land has collapsed into an empty magma chamber (p. 14)

cinders *(n.)* small rocks or pebbles formed from flying lava and ash (p. 17)

crater *(n.)* a bowl-shaped hollow area in a volcano where lava, ash, and gases come out (p. 11)

dormant *(adj.)* quiet for many hundreds of years (p. 4)

extinct *(adj.)* not having erupted in thousands of years and showing no sign of future eruptions (p. 4)

geysers *(n.)* hot springs that boil from time to time, sending a column of water and steam into the air (p. 10)

lava *(n.)* melted liquid rock that reaches Earth's surface (p. 4)

magma *(n.)* melted liquid rock beneath Earth's surface (p. 7)

plates *(n.)* large sheets of rock that make up Earth's crust (p. 7)

surge cloud *(n.)* a superheated cloud of ash, gas, dust, and rock that moves quickly along the ground (p. 6)

vents *(n.)* openings in Earth's crust through which magma and gases emerge (p. 12)

Name: _____ Date: _____

Volcanoes

Directions: *Write the main idea and supporting details for the section titled "Shield Volcanoes". Then write a summary, using the main idea and details you gathered.*

Main Idea

Details

1.

2.

3.

Summary

Lesson 2: Erosion

Prerequisite:
CC2RI2 Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
CC2RI5: Know and use various text features to locate key facts or information in a text efficiently.
CC2RI10: By the end of the year, read and comprehend informational text, including: history/social studies, science, and technical texts, and the 2/3 text complexity band proficiently, with scaffolding as needed at the high end of the range.
CC2SL.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups

Essential Question: *(What question—from your Student Learning Map and based on your standards/grade-level expectations—will direct and focus this lesson?)*
How do readers evidence from the text gain a deeper understanding of erosion?

AP#1: Students will use the text to answer text dependent questions.
AP#2: Students will complete the graphic organizer independently after teacher gives directions.

Standards:
Science: 2 ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
Reading: CC2RI1: Ask and answer such questions as who, what, when, where, why, how to demonstrate understanding of key details in a text.
CC2SL.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

Activating Strategies: *(How will you hook students at the beginning of the lesson and activate and/or build the necessary prior knowledge?)*
The teacher will ask students to share details that they learned about volcanoes (ex. Cause destruction, happen quickly, etc.) Then the teacher will tell students that now they will be learning about erosion which is a geologic event (teacher will tell students that a geologic event is something that happens to land on the earth.) that can change or affect the Earth's surface.

Key Vocabulary to preview: *(What content-specific vocabulary will students need to know in order to make meaning of the learning in the lesson?)*

Erosion

Materials Needed: *(What specific materials will you need to present this lesson?)*

Erosion text
Graphic organizer
Pencil
Bill Nye erosion video:
http://www.teachertube.com/viewVideo.php?video_id=274944

Instructional Plan: *(How will you provide instruction and/or specific learning experiences which lead students to the understanding necessary to respond to each assessment prompt? What will be the sequence of these learning experiences?)*

Instructional Chunk #1:

1. The teacher will create an anchor chart titled erosion. The teacher can ask if anyone knows anything about erosion and will record any answers on the chart.
2. The teacher will tell students that erosion is the process that breaks things down. The teacher will write the definition on the chart for students to reference later.
3. Teacher will pass out the Reading A-Z Erosion text. The teacher will have students look at the pictures. Now the teacher will read the first and second paragraphs while students follow along. After reading the paragraphs, the teacher will ask, "What happens during erosion?" Students will be encouraged to think-pair-share (AP #1) while the teacher walks around to hear the discussions. The teacher will bring the class back together and call on pairs to share their answers with the class. (Possible student answers: small pieces of rock or soil move from one place to another; bigger things get broken down into smaller things).

The teacher should write student answers down on the Erosion anchor chart for all of the text dependent questions in this lesson

4. The teacher will read paragraph 3 while students follow along. The teacher will ask, "How can water change the shape of rocks or mud next to a river or stream?" (AP#1). Students will think-pair-share while teacher walks around to hear discussions. The teacher will bring the class back together and call on students to share their answers. (Possible student answers: if a rock is smooth it could mean that water has worn off all of the sharp pieces; water can break big boulders; the water next to a stream or river is brown because it has taken tiny pieces of soil).
5. The teacher will read aloud the rest of the text while students follow along. The teacher will then ask students to think-pair-share to, "Explain how the Grand Canyon was formed by erosion." (AP#1). The teacher will walk around to hear student discussions. Next, the teacher will bring the class back together and call on pairs to share their answers. (Possible student answer: Over five million years the Colorado River broke off pieces of rock and carried it toward the sea. This is how the Grand Canyon was formed).
6. The class will then review all of the details about erosion that were written on the Erosion anchor chart in this lesson.

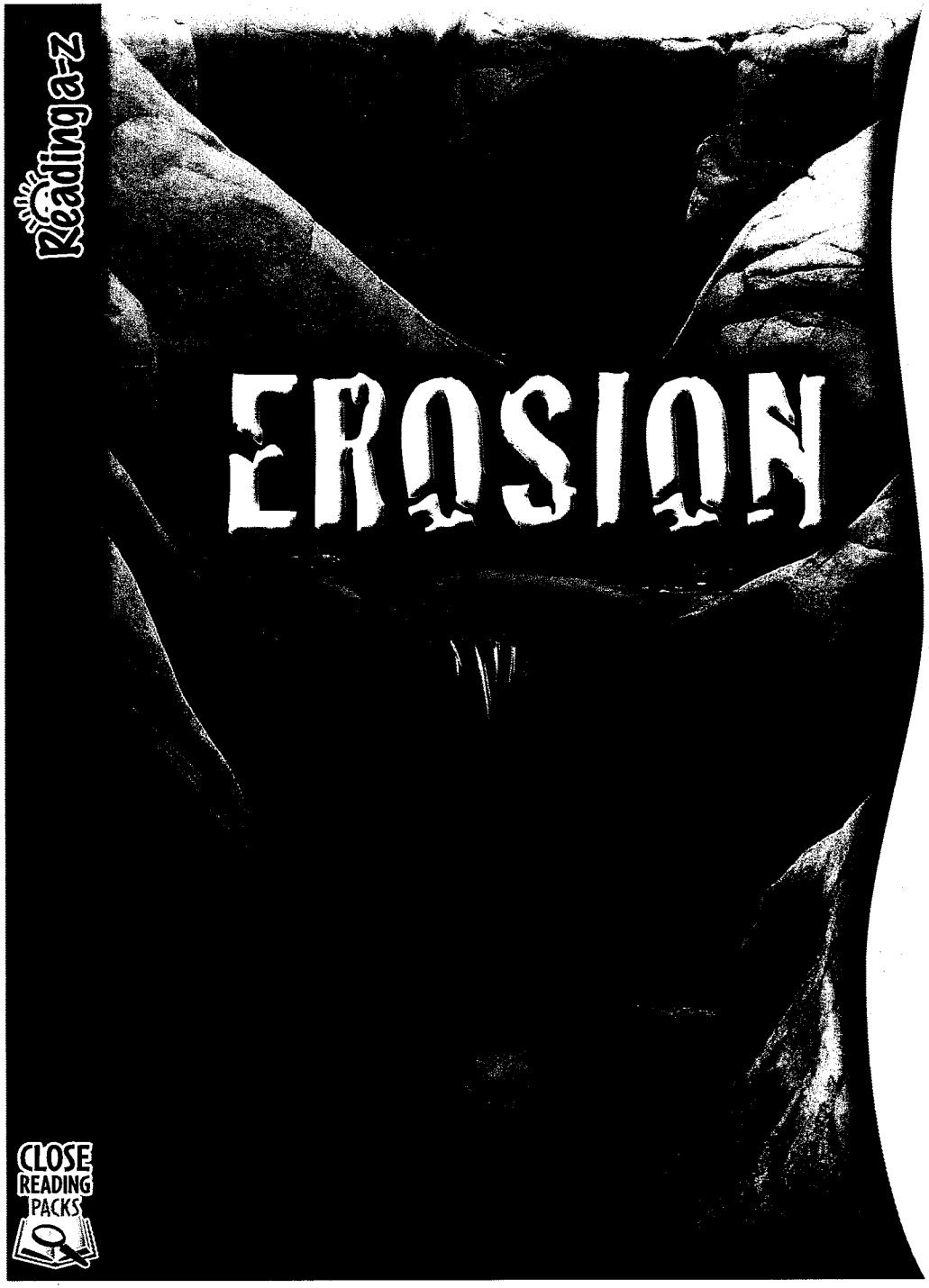
Instructional Chunk #2:

1. The teacher will tell the class that in today's lesson they will be watching Bill Nye's video on Erosion. Let's start by looking at our chart from yesterday—what did we learn? Students could do a think-pair-share of the big ideas from the previous lesson; or as whole group.
2. After the video, the teacher will lead a discussion on what details the students heard about erosion and these can be added to the anchor chart.
3. Now, the class will take out the text on Erosion from the previous day. It is recommended that the class read aloud the text to refresh students' memories. The teacher can read or have students read.
4. After reading the text, the teacher will hand out the graphic organizer. (AP#2). The teacher should project the organizer either with an Elmo or on a Smartboard. The teacher will read the directions and make sure students understand what to do. The students will then independently complete the organizer and the teacher will assist students as needed.
5. After giving students time to complete the organizer, the teacher will project the blank organizer on the Elmo or Smartboard, and then ask students to share their answers and record them on the organizer. (Possible answers: Main idea: Erosion is the process that breaks things down and

changes the Earth's surface; Details: a tool of erosion is water, water wears away the sharp edges of rocks, water in a stream or river is brown from the rocks, Grand Canyon was formed by erosion, erosion changes coastlines; Summary: summaries should include the Main Idea and details).

Closure:

The teacher can ask students to turn and talk to a partner and share two things they learned about erosion and have students share their partners' answers with the class.



Have you ever wondered how the surface of Earth gets many of its different shapes? It's partly because of erosion.

Erosion is the process that breaks things down. During erosion, small pieces of rock or soil move from one place to another. So, you can think of erosion as a way that bigger things are broken down into smaller things.

The usual tool of erosion is water. Think about a rock that you pick up at the ocean or in a river. It is probably very smooth. That's because, over time, water has worn off all the sharp pieces. Now think about the mud next to a river or stream. That's an example of erosion. The water is brown because it has taken away many tiny bits

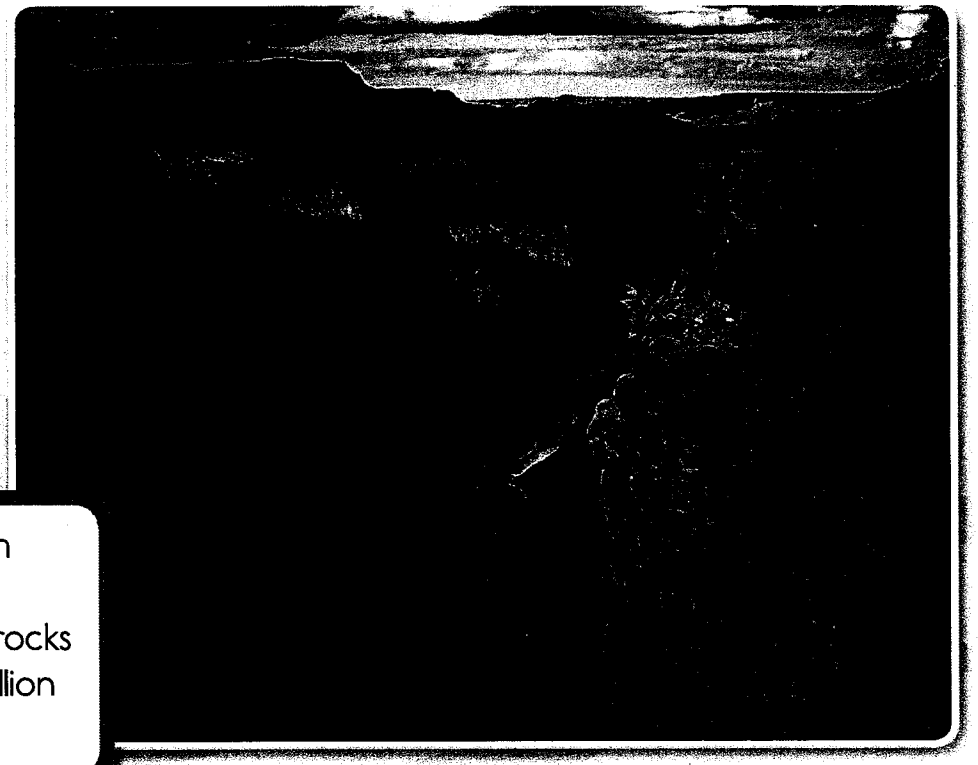
Credits: left: © Michael Melford/National Geographic Stock

of soil. And the shape of the river or stream is changed, even if only a little. Water can even break large boulders. It doesn't seem like water is strong enough to break down and carve out rock, does it? However, moving water is amazingly powerful.

One famous example of erosion by water is the Grand Canyon. For five million years, the rushing water of the Colorado River broke off small pieces of rock and carried them away toward the sea. Today, the Grand Canyon is one mile deep and, in some places, eighteen miles wide. And it's all because of erosion!

Erosion also changes the shape of coastlines. Waves hit rocks over and over again. The rocks break and the water takes them away. On a sandy beach, the waves take away the sand and put it somewhere else.

Wow! Did you ever think that the same water you drink could change Earth's surface?



DID YOU KNOW?

At the bottom of the **Grand Canyon** are rocks that are 1.8 billion years old.

Credits: right: © Corbis/SuperStock

Name: _____ Date: _____

Erosion

Directions: *Write the main idea and supporting details for the Erosion text. Then write a summary, using the main idea and details you gathered.*

Main Idea

_____

_____

_____

_____

_____

_____

Details

4. _____

_____

_____

5. _____

_____

_____

6. _____

_____

Summary

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Lesson 3: Compare and Contrast Volcanoes and Erosion

Prerequisite:

CC2RI1: Ask and answer such questions as who, what, when, where, why, how to demonstrate understanding of key details in a text.

CC2RI2 Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
CC2RI5: Know and use various text features to locate key facts or information in a text efficiently.
CC2RI10: By the end of the year, read and comprehend informational text, including: history/social studies, science, and technical texts, and the 2/3 text complexity band proficiently, with scaffolding as needed at the high end of the range.
CC2SL.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
CC2SL.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

Essential Question: *(What question—from your Student Learning Map and based on your standards/grade-level expectations—will direct and focus this lesson?)*
How do volcanoes affect the landscape of the Earth?

AP#1: Students will complete a Venn Diagram comparing and contrasting Cats and Dogs.
AP#2: Students will complete a Venn Diagram comparing and contrasting Volcanoes and Erosion.
AP#3: Students will use their Venn Diagram to write an essay comparing and contrasting Volcanoes and Erosion.

Standards:
Science: 2-ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly and slowly.
CC2W.6: With guidance and support from adults, use a variety of digital tools to produce and publish writing, including collaboration with peers.
CC2W.7: Participate in shared research and writing projects.
CC2W.8: Recall information from experiences or gather information from provided sources to answer a question.
CC2W.2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

Activating Strategies: *(How will you hook students at the beginning of the lesson and activate and/or build the necessary prior knowledge?)*
Teacher will distribute a Venn Diagram for students to complete as a class. Student may use their graphic organizers to complete.

Key Vocabulary to preview: *(What content-specific vocabulary will students need to know in order to make meaning of the learning in the lesson?)*

Materials Needed: *(What specific materials will you need to present this lesson?)*

Cats and Dogs Venn Diagram
Volcano and Erosion Venn Diagram
Graphic organizer from prior lessons
Delaware Writing Rubric

Instructional Plan: *(How will you provide instruction and/or specific learning experiences which lead students to the understanding necessary to respond to each assessment prompt? What will be the sequence of these learning experiences?)*

Instructional Chunk #1:

1. Tell students that they will be using the information they gained from reading about volcanoes and erosion to write a compare/contrast essay. But first they will learn HOW to write an essay comparing two common animals. Ask them to think about dogs and cats. What do they know about dogs and cats? Have them think, not to shout out their answers yet… then display a Venn Diagram and ask the students if they know what it is and what it is use for. (Students may say it is a way to compare two things).
2. Pass out a Venn Diagram template and have them write their name at the top. Have them label one large circle "Dogs", the other "Cats", and in the middle "Same". (Label the diagram on display to model where and how they should do it). Then ask them to name some characteristics of dogs, what do dogs have? (Students may answer: tails, four legs, they bark, pant, chase cats, long or short hair, etc.) As they are giving answers, write them in the circle titled "Dogs".
3. Have the students copy the characteristics on their Venn Diagram. Then do the same thing with cats. Ask them what are some characteristics of cats? (Answers may include: long tails, soft fur, meow, purr, four legs, etc). Again, as they are giving the answers, write them in the appropriate space. Again, have the students copy down the characteristics on their Venn Diagram. (Pass out highlighters to the students, or have them take them out). Tell them to highlight the characteristics that dogs and cats share. What do they have that is the same? They should highlight four legs, tails, ears, fur; eat food…whatever they suggested that is written in both circles. (AP#1)
4. Now, the phrases or words you highlighted get written in the middle of the Venn Diagram, where it says "Same". These are the things that cats and dogs share, their commonalities (yes, I use this word with my 2nd and 3rd graders.)
5. As students are filling in their Venn Diagram, walk around to make sure that everyone is on task and filling in the words/phrases in the correct spaces.
6. After the students are finished, ask them to look at their organizer and ask them why this is helpful for writing an essay. (Possible answer would be 'it helps us to write the correct information' or 'it has the important information on it already.

Instructional Chunk #2:

7. Ask students what the purpose of a Venn Diagram is (Possible student answer: it is used to show similarities between things). Remind them that yesterday the class did a Venn Diagram comparing and contrasting cats and dogs.
8. Pass out the blank Erosion and Volcanoes Venn Diagram. Tell them that today they will be using their Erosion and Volcano graphic organizers to fill in a Venn Diagram.
9. Also remind students that they can also use the anchor charts from Lessons 1 & 2 to help them. Assist students as needed so they can successfully complete their Venn Diagrams.

10. They are to work independently, and the teacher will circulate around the room, asking guiding questions to check for understanding. [The students will head each of the large circles volcanoes and the other circle erosion. Then the teacher will have the students write 3 facts about Volcanoes and 3 facts about Erosion in the corresponding circles. The students will then find at least two similarities (teacher is looking for they both happen to the Earth's surface and they are both geologic events)].

Instructional Chunk #3:

11. Have the students take out their completed graphic organizer on dogs and cats. Now tell students that today you will show them how to use the Venn Diagram to compose a compare/contrast essay. (Post the Paragraph Graphic Organizer alongside the Venn Diagram). Point out to students the similarities between the Venn and the Paragraph Organizer. There is a paragraph that is all about cats. They will write their cat information from the Venn in sentences on those lines. Point out that paragraph 3 is all about dogs. They write dog information from the Venn in sentences on those lines. Then point out that paragraph 4 is where they will write sentences about what cats and dogs share. The Introduction and the Closing we will save for last and fill them in after we complete the other paragraphs.
12. Now, together, show the students how and what to write for each paragraph. Start with paragraph 2, composing sentences from the words and phrases from the Venn. Students can give suggestions to what the sentence should say. Write it in the organizer and have students write it on theirs as well. Continue doing the same with paragraph 3 and 4.
13. After the 3 paragraphs are written on the board and in the students' organizers, ask them to think of a good introduction, reminding them that the introduction will be telling the reader what it is they will be reading about. (Students may say, 'The differences between cats and dogs', or 'This is an essay comparing cats and dogs.'). Write the introductory sentence, and have them copy from the organizer.
14. Do the same thing with the closing sentences. The closing tells the reader what they just read about. Tell them that they can rephrase the introductory sentence, and then give them the example, "These are the similarities and differences of cats and dogs." Have them write the closing sentence. After reading through the rough draft, ask students what is paragraph 2 about? What does the closing paragraph tell us? (AP#2)

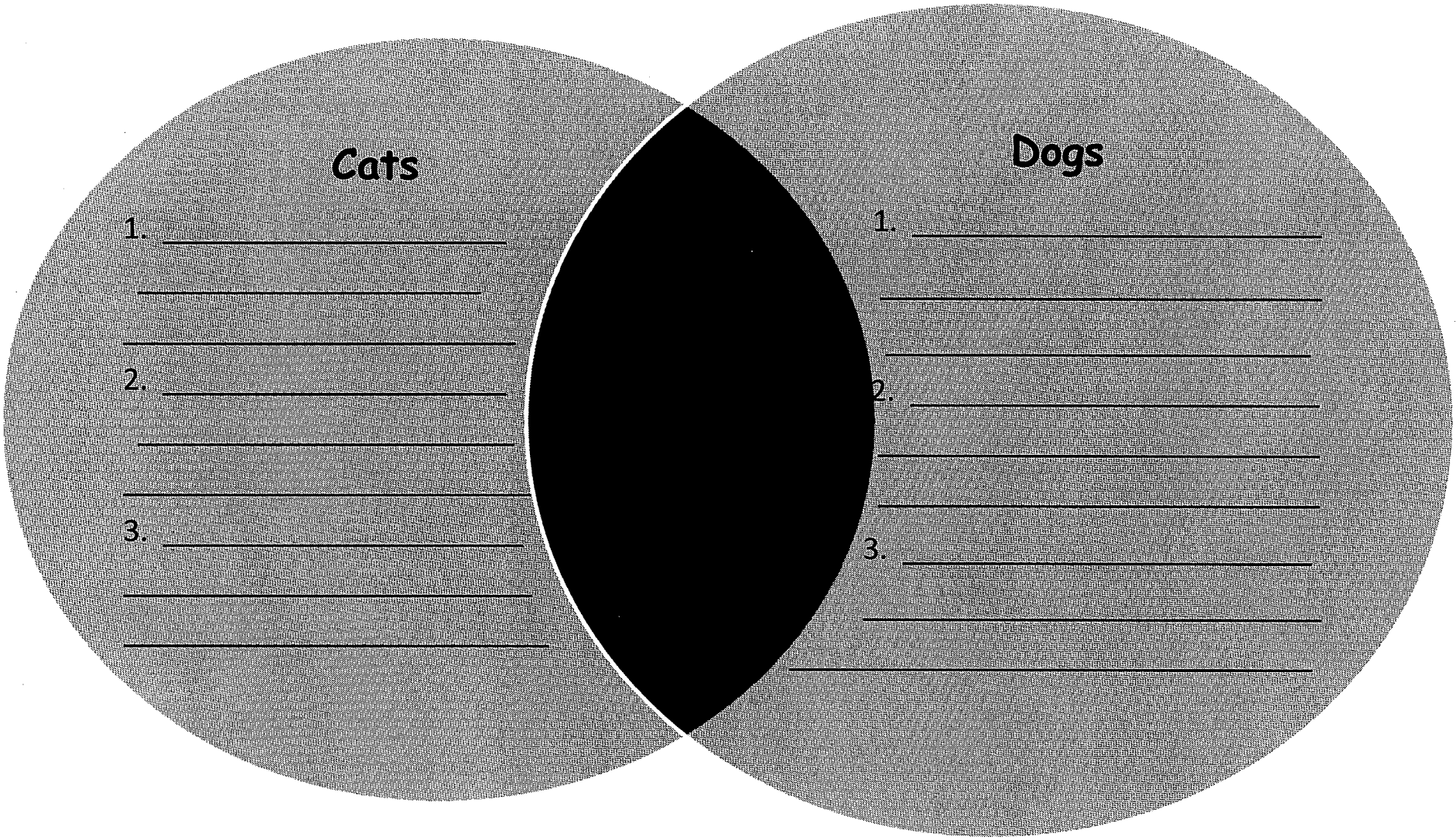
Instructional Chunk #4:

15. Gather the students together. Ask them to think back to the last few days, turn to the person next to them, and tell that person what we did. Then ask for volunteers to answer the question, "What did we do the last few days?" (Teacher will be looking for answers like, 'We wrote an essay about cats and dogs.', or 'We made a Diagram with circles, and wrote a story.')
16. Tell them today they will be doing the same thing, only now with their Volcanoes and Erosion graphic organizers. Posted somewhere (whiteboard, Smartboard, chart paper) should be a reminder of the steps they took writing the cats and dogs essay, so they can refer to the steps while working on their own.
17. The teacher should release the responsibility to the students to write their rough drafts independently. The teacher should monitor student's progress and assist as needed.
18. As students complete their rough drafts, the teacher will conference with each student to edit and proofread the rough draft.
19. Students will then write their final copy using their edited rough drafts. (AP#3)

Closure:
Teacher will ask students to pair/share something interesting that they have learned about volcanoes and erosion. Or the teacher can have the students share their essays.

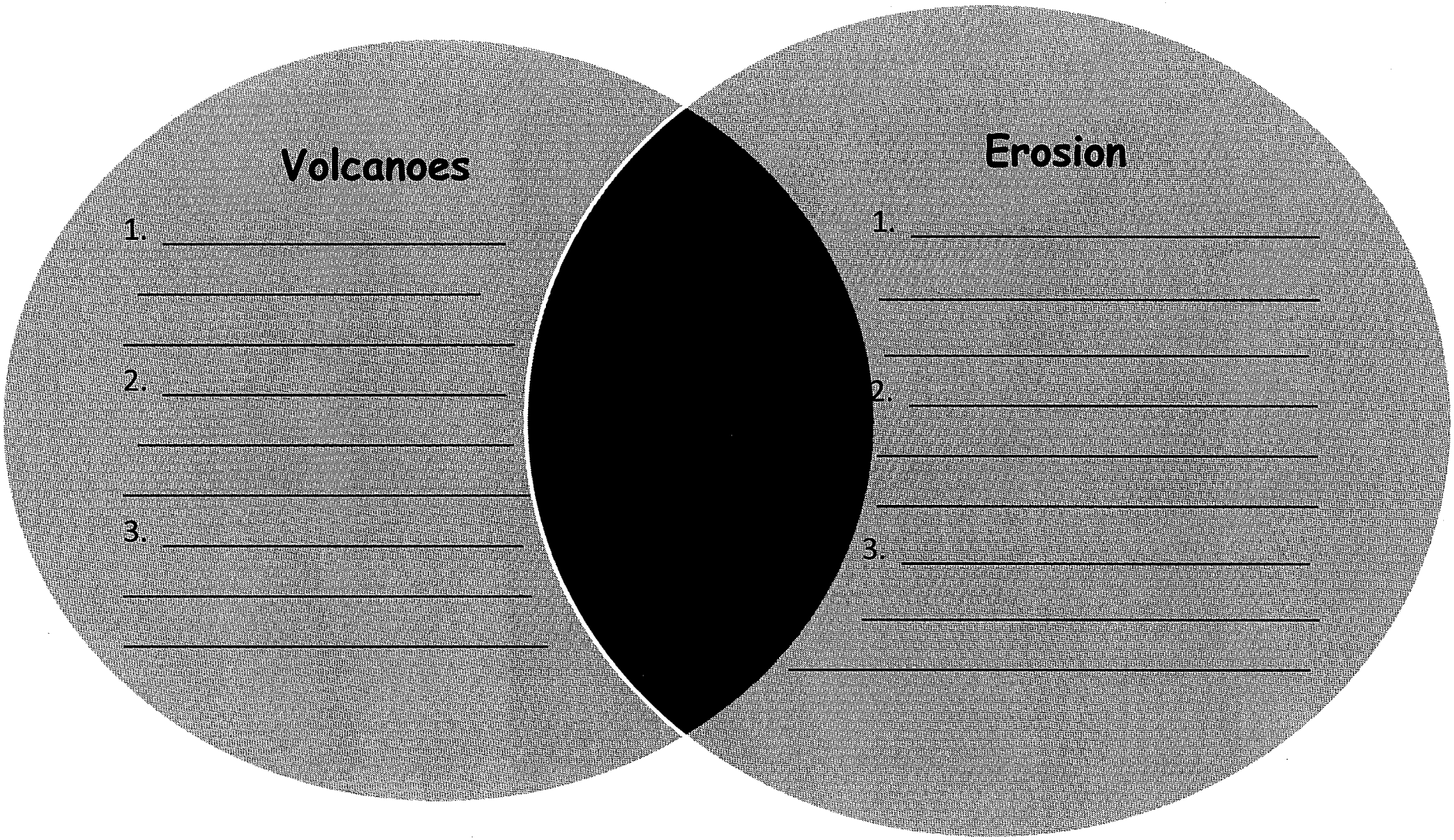
Name: _____ Date: _____

Cats and Dogs



Name: _____ Date: _____

Volcanoes and Erosion



Delaware Department of Education

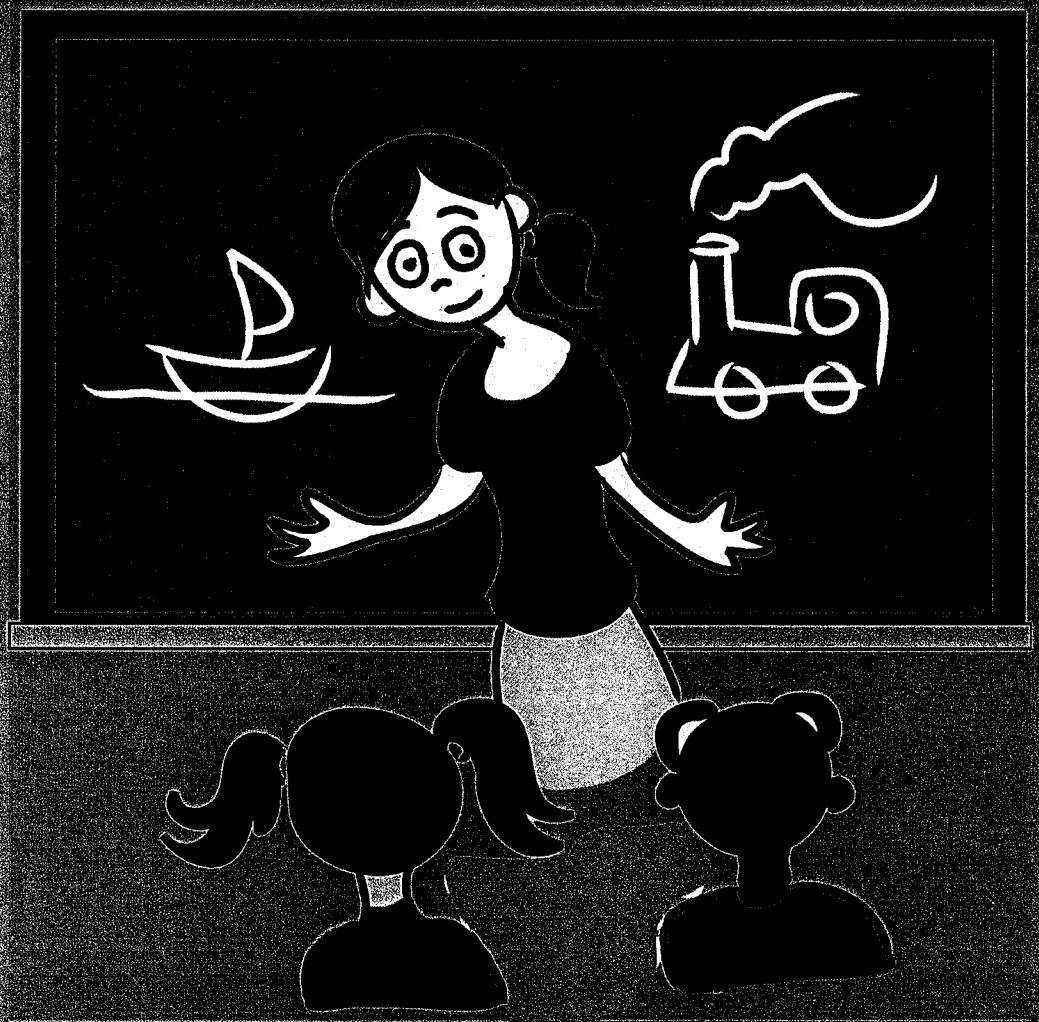
Informational or Explanatory Text-Based Writing Rubric
Grade 2

	Score of 4	Score of 3	Score of 2	Score of 1
Reading/ Research 2 × ___ = ___	The writing – ▪ makes effective use of available resources ▪ effectively uses relevant and sufficient text support from the provided resources with accuracy	The writing – ▪ makes adequate use of available resources ▪ uses relevant and sufficient text support from the provided resources with accuracy	The writing – ▪ makes limited use of available resources ▪ inconsistently uses relevant and sufficient text support from the provided resources with accuracy	The writing – ▪ makes inadequate use of available resources ▪ fails to use relevant and sufficient text support from the provided resources with accuracy
Development 3 × ___ = ___	The writing – ▪ addresses all aspects of the writing task with a tightly focused and detailed response ▪ effectively develops points using relevant and sufficient facts and definitions	The writing – ▪ addresses the writing task with a focused response ▪ develops points using relevant and sufficient facts and definitions	The writing – ▪ addresses the writing task with an inconsistent focus ▪ inconsistently develops points using relevant and sufficient facts and definitions	The writing – ▪ attempts to address the writing task but lacks focus ▪ develops points using irrelevant and/or insufficient facts and definitions
Organization 2 × ___ = ___	The writing – ▪ effectively introduces the topic ▪ has evidence of purposeful organization that supports the writing task ▪ provides an effective concluding statement or section	The writing – ▪ introduces the topic ▪ has evidence of purposeful organization ▪ provides a concluding statement or section	The writing – ▪ may introduce the topic ▪ has limited evidence of purposeful organization (ideas may be rambling and/or repetitive) ▪ provides a sense of closure	The writing – ▪ identifies the topic ▪ has little or no evidence of purposeful organization
Language/ Conventions 1 × ___ = ___	The writing – ▪ demonstrates a well-developed command of standard English conventions ▪ has sentences that are skillfully constructed with appropriate variety in length and structure	The writing – ▪ demonstrates a command of standard English conventions; errors do not interfere with understanding ▪ has sentences that are generally complete with sufficient variety in length and structure	The writing – ▪ demonstrates a limited and/or inconsistent command of standard English conventions; errors may interfere with understanding ▪ has some sentence formation errors and/or a lack of sentence variety	The writing – ▪ demonstrates a weak command of standard English conventions; errors interfere with understanding ▪ has frequent and severe sentence formation errors and/or a lack of sentence variety

Comparing and Contrasting Nonfiction Texts

Graphic Organizers

Common Core Standards R.I. 2.9 and 3.9



Two Teachers Creations

Helpful Tips

Thank you for purchasing this item. I created these graphic organizers to help my students pay better attention during a read aloud and to show them how to organize their information in a Venn diagram. The response sheet and Venn diagram has been especially successful with my English Language Learners and students with special needs. Here are some helpful tips for using this item:

Common Core: These graphic organizers can be used to help teach the following Common Core Standards:

R.I. 2.9 Compare and contrast the most important points presented by two texts on the same topic.

RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic..

Ideas:

I suggest completing the response sheets and Venn diagrams as a whole group the first time around. Choose two books about the same topic, for instance I chose two nonfiction books about bats. After reading aloud one of the books, have students fill out the response sheet or complete it together as a class. This will help students remember the main idea and details of the book. It can even give them ideas to share during a discussion about the book. Read aloud the second book and have students complete the second half of the response sheet. When students have finished filling out the response sheet for both books, they can use the response sheet to help them fill out the Venn Diagram. After students get the hang of it, use this activity with other nonfiction books and have students try to compare and contrast the two texts independently. Students who are more advanced can write a paragraph comparing and contrasting the two books they read. I included a sheet with sentence stems that may help your ELL or special needs students.

Name:_____ Date:_____

Compare and Contrast
Nonfiction Texts

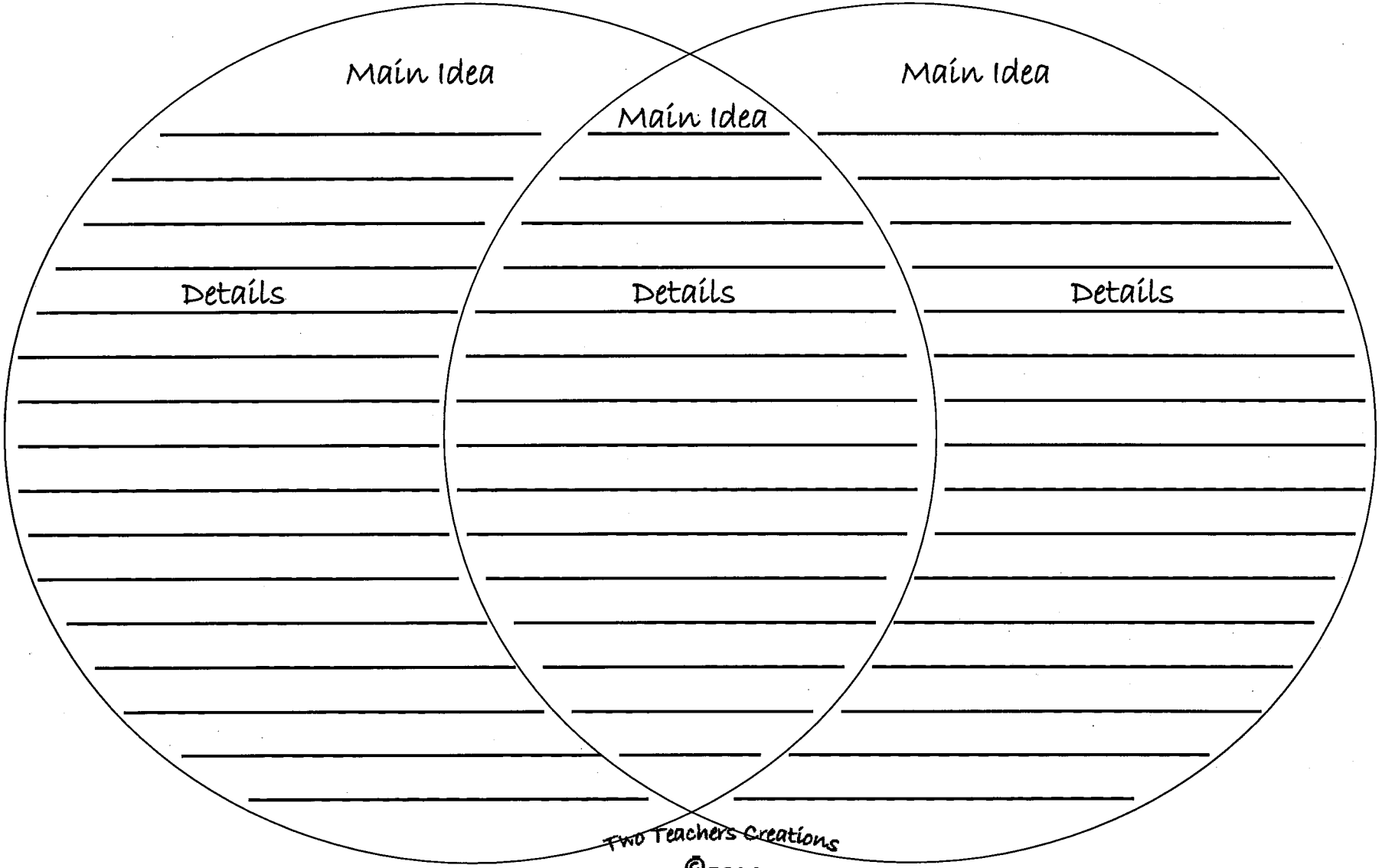
Title	Title
Main Idea	Main Idea
Detail 1	Detail 1
Detail 2	Detail 2
Detail 3	Detail 3
Detail 4	Detail 4

Name _____ Date _____

Compare and Contrast

Nonfiction Texts

Title: _____ Title: _____



Name:_____ Date:_____

Compare and Contrast
Nonfiction Texts

Write a paragraph explaining how the two texts are the same and how they are different.

Name:_____ Date:_____

Compare and Contrast
Nonfiction Texts

Write a paragraph explaining how the two texts are the same and how they are different.

The two texts _____ and
(Title 1)

_____ are different.
(Title 2)

In the text _____, _____
(Title 1)

_____

_____.

In the text _____,
(Title 2)

_____

_____

_____ and _____
(Title 1) (Title 2)

are the same. In both texts _____

_____

_____

_____

_____