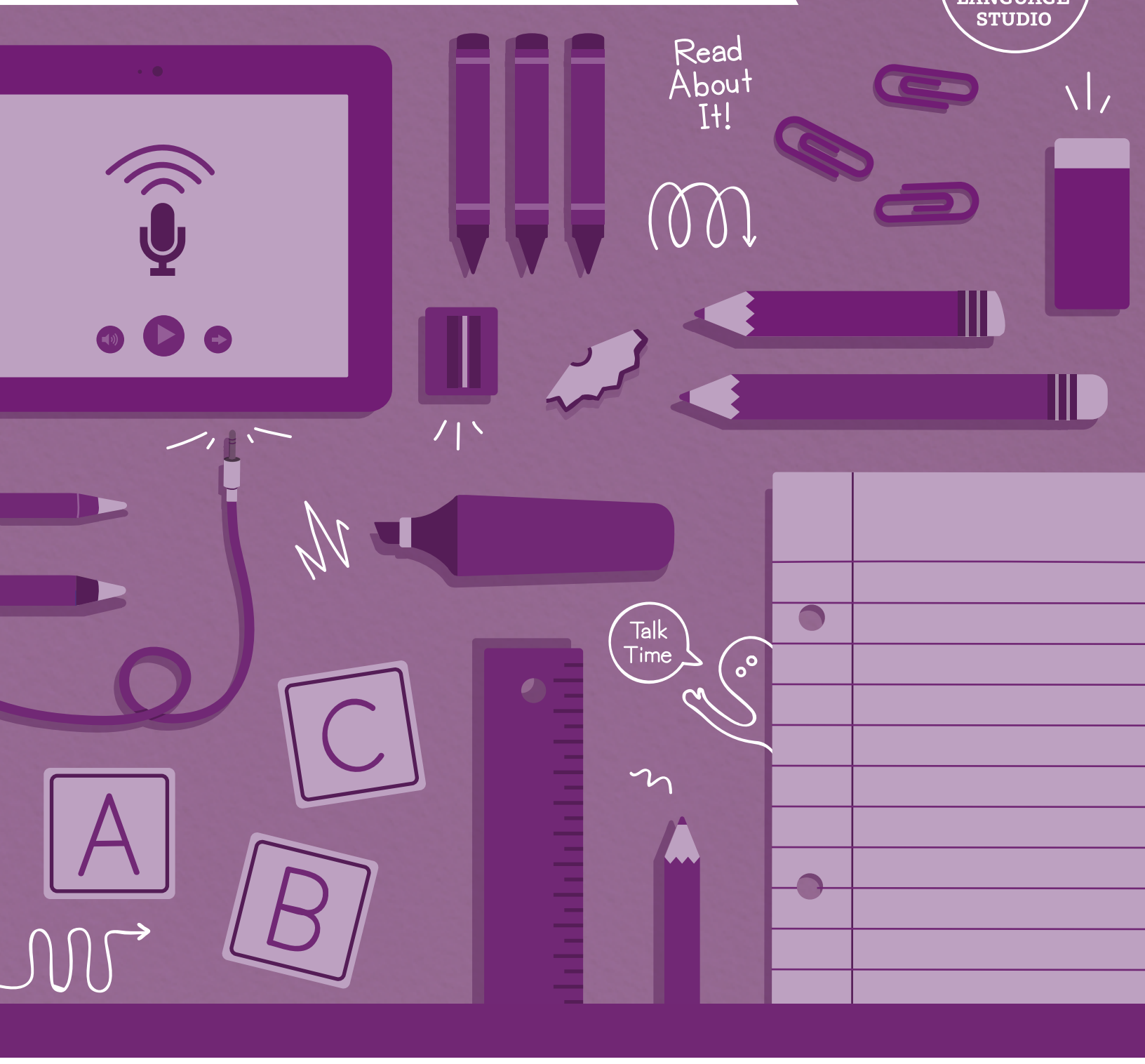
Amplify Core Knowledge Language Arts®

LANGUAGE STUDIO



Language Studio

Activity Book | Grade 5

Volume 4

Grade 5 | Language Studio 8–9

Volume 4

Activity Book

Amplify Core Knowledge Language Arts

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Contents

VOLUME 4

Language Studio 8

Native Americans

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1.1 ACTIVITY PAGE

LANGUAGE STUDIO 8: NATIVE AMERICANS

A Long and Winding Road

Directions: Read to find out about the indigenous peoples who inhabited North America before the arrival of European settlers.

"If we ever owned the land, we own it still, for we never sold it..."

Chief Joseph Nez-Perce

Exploration and Settlement

The year 1492 CE is a notable date in history—especially American history. Christopher Columbus sailed from Spain in that year to look for a passage to Asia, because that is what he thought he would find across the Atlantic Ocean. Instead, he bumped into a new continent. Columbus's voyage triggered what some call an Age of Discovery. He was just one of many, many explorers from Spain, England, France, and other European countries to travel across the Atlantic.

At first, the Europeans did not know what to call this land. Some called it the West Indies, because they thought it was part of Asia. Later, they named it the Americas, after an Italian explorer named Amerigo Vespucci, who figured out that it really was a new continent—or, more precisely, two new continents: North and South America. Many Europeans simply referred to it as the New World because it was not on any of their maps, and everything seemed strange and new to them. For Europeans, this New World promised not only new lands but also incredible riches: gold, silver, sugar, tobacco, lumber, animal furs, and a host of other resources. European nations sent armies to fight over these riches, and they sent settlers to harvest them.

As you probably know, Columbus was not the first person to find the Americas. European explorers and settlers encountered people everywhere they went. These were the original or "native" people of the Americas because they had lived on this land before anyone else. Some Europeans called them Indians, although they were not really in the Indies at all. The name stuck, and that is why you hear the term *American Indian* today.

Beginning in 1492 CE, many things began to change for the **indigenous** peoples of North and South America. For some, the change came quickly. This was especially true in places such as Mexico and Peru, where the Aztec and Inca empires ruled. Their

civilizations fell quickly to Spanish conquerors. The Spanish brought their powerful guns, steel swords, and horses. They (and all other Europeans) also brought diseases against which the native peoples had no natural defenses. By the end of the 1500s, Spanish soldiers and diseases wiped out many groups of people from Mexico through South America.

Change was more gradual for Native Americans in the part of North America that later became the United States. Although the early Spanish explorers built several settlements north of Mexico, they did not conquer all of this land. However, the Spanish were not the only Europeans interested in the Americas. The English, French, Portuguese, and Dutch also crossed the ocean in search of riches. They, too, sent explorers, and soon they built settlements and colonies of their own.

The English settled at Jamestown, Virginia, where they built a fort in 1607 CE. There, Captain John Smith met Pocahontas and her tribe, the Powhatan. A few years later, in 1620 CE, the Pilgrims landed at Plymouth Rock. They interacted with the Wampanoag people, including a man named Tisquantum, also known as Squanto, who helped them learn to survive. The Pilgrims were grateful to Squanto for his help. According to some historical records, the Pilgrims and Native Americans came together for a meal to share the bounty of their harvest. Today we remember and celebrate this meal as Thanksgiving.

As with the story of Columbus, the story of Thanksgiving is only a fragment of a much larger story about Native Americans and the impact Europeans had on their world. Unfortunately, the themes of the Thanksgiving story—such as cooperation, friendship, and gratitude—are not common in the history of relations between Native Americans and Europeans.

A Changing World: East and West

If you were a Native American boy or girl born somewhere on the Great Plains during the 1500s or 1600s, European explorers existed mainly in rumors and campfire tales. In other words, most Plains tribes did not meet many Europeans at first, but they probably did hear stories about them. Where did these stories come from?

Native Americans usually traded with neighboring tribes. Each tribe had something that another tribe needed. They traded animal furs, plants and herbs, pottery, jewelry, and tools or weapons made from various stones, bones, wood, or shells. Whenever they traded things, they also talked and shared news and stories that they heard from other tribes. Around the fire at night, they shared stories of strange men from distant lands. Some said these men came from the sea itself, while others told of giant sailing ships. These strange men had beards, and they wore metal armor on their bodies. They carried powerful weapons that made the sound of thunder echo through the forests and canyons. They also rode on great beasts called horses. Native Americans had never seen any of these things before Europeans arrived.

Native Americans trading with each other

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Europeans trading with Native Americans

On the other hand, change was somewhat swifter for tribes in the East. From Florida all the way up to Maine and Canada, ships carrying eager and adventurous Europeans arrived. They came from England, France, Spain, the Netherlands, and other countries. They did not come simply to explore the land, hunt for valuable furs, and take treasure back to their homes in the so-called Old World; they came to stay. For eastern tribes, life became very challenging as Europeans moved in and established farms, towns, and cities.

European settlers were interested in two things even more valuable than furs. First, they needed knowledge to aid their survival, which Native Americans had in great supply. Native Americans showed settlers how to grow native plants like corn, beans, and tobacco. They taught them where to hunt for their own beaver, bear, and buffalo hides. They taught them the secrets of the forests and mountains and rivers. They also taught them about other tribes.

Second, settlers wanted land. English settlers established 13 colonies on the East Coast. Over time, the Native American tribes in these areas lost most of their land or were forced to move to reservations as European settlers built farms, roads, towns, factories, and cities. Gradually, the settlers ventured away from the East Coast and over the Appalachian Mountains. They encountered the vast landscape of the American West. To them, it must have seemed like a land of opportunity, as such expansion and settlement was no longer possible in Europe.

In 1776, those 13 colonies became the United States, and its government had a plan to make the new nation strong and powerful. The US government seized land where Native American tribes lived. Many tribes fought back, but they could not prevent their land from being taken. The Cherokee people, for example, were one of the last large, powerful tribes in the woodlands of the southeastern United States. As the United States expanded its reach during the early 1800s, more and more settlers moved onto Cherokee lands, creating **tensions** that boiled over into war. The Cherokee tried to adapt to life as farmers and live according to the laws of the United States. Ultimately, though, the U.S. government (under President Andrew Jackson) decided there was no room for the Cherokee or any other tribes. With the Indian Removal Act of 1830, the Cherokee and other tribes east of the Mississippi River were forced to move west to newly established "Indian Territory," in what would later become Oklahoma. Thousands of Cherokee and other Native Americans died on the long walk westward, a journey remembered today as the Trail of Tears.

The Cherokee experience—including the tension, wars, and **forced relocation** to reservation land—was a narrative that played out again and again with other Native American tribes during the 1800s. Eventually, most tribes in the present-day United States, including the tribes of the Great Plains, experienced a similar fate. As you will learn, there are many sad, tragic chapters in the Native American story. The Native American way of life—which had existed for thousands of years before Europeans arrived—was seriously threatened. Fortunately, however, Native American cultures did not vanish. Although it was not easy, many Native American tribes did survive and redefined themselves to become part of a new nation, the United States. Their age-old traditions are still celebrated, and they still walk upon the land they love.

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1.2 ACTIVITY PAGE

LANGUAGE STUDIO 8: NATIVE AMERICANS

300 Years Ago

Directions: Use the text on Activity Page 1.1 to respond to the following questions. Plan your responses with a partner, and use complete sentences.

Find the quote under the photograph of Chief Joseph-Nez Perce at the beginning of Activity Page 1.1. What is the meaning of the quote? Who was the chief speaking about when he said, "we"? Think about these questions as you read the rest of the passage and answer them when you have finished. Use evidence from the text to support your answers.

Imagine being born 300 years ago, what would have been the date? What other things were happening in the world at that time? Where were your ancestors, and what were they doing?

Compare and contrast the way Native American people lived 300 years ago to the way most American people live today.

Vocabulary for "Native Americans"

1. **indigenous,** ***adj.*** originating in a certain location or region

2. **reservation,** ***n.*** a separate area of land in the United States set aside for Native Americans to live on **(reservations)**

3. **tension,** ***n.*** discomfort felt when different people or groups disagree and feel anger toward each other; a strain **(tensions)**

4. **forced relocation,** ***n.*** the act of making people move to a new place against their will

5. **symbolize,** ***v.*** to represent, or be a symbol of, something **(symbolizes)**

6. **remnant,** ***n.*** a leftover piece; a small part of the whole **(remnants)**

7. **scout, 1.** ***n.*** someone who is sent somewhere in advance of others to gather information; **2.** ***v.*** to observe someone or something in order to gather and report information about that person or thing

8. **band,** ***n.*** a group of people, animals, or things that act together to achieve a common purpose **(bands)**

9. **council,** ***n.*** a group of people chosen to lead or give advice

10. **wakan,** ***n.*** in the Sioux culture, a supernatural power

11. **immigrant,** ***n.*** someone who leaves his or her own country to live in another country **(immigrants)**

12. **lean,** ***adj.*** having few resources, such as food, fuel, and money

13. **nimble, *adj.*** able to move quickly and gracefully

14. **meek, *adj.*** quiet; gentle

15. **vibration, *n.*** a continuous, fast, shaking movement **(vibrations)**

16. **recede, *v.*** to move back from; withdraw **(receded)**

17. **isolation, *n.*** a separation from other things or people

18. **revive, *v.*** to make someone or something strong, active, alive, or healthy again **(*n.* revival)**

19. **symbolize, *v.*** to represent, or be a symbol of, something **(symbolizes)**

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2.1 ACTIVITY PAGE

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The Land of Plenty

Native American tribes lived in every habitable place.

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The Land of Plenty, cont.

Directions: Use information from the paragraphs below to label the map on Activity Page 2.1. Near the name of each Native American tribe, list information provided in the text and map about the natural environment the tribe inhabited and your inferences about the resources available to them.

The People of the Great Plains

For the Lakota and other tribes of the Great Plains, there was no greater symbol of the connection between people and nature than the buffalo. Some tribes on the Plains grew crops, especially corn, and they gathered various wild plants, but buffalo were always the main source of food. These are the largest animals in North America, heavier than even the biggest moose or grizzly bear. At one time, massive buffalo herds ruled the Great Plains. There were millions of them, and the earth trembled beneath their thundering hooves.

North American buffalo (bison)

Buffalo were valued for far more than their meat. In fact, Plains tribes used every part of the animal: blood, bones, hide, intestines, and organs; everything had a purpose. After a kill, the best meat was eaten right away, and the rest of it was dried and stored for later use. Hides were used for such things as clothing, tepee covers, bedding, and moccasins. The hair was used to make rope, pillows, or ornaments. The bones were used to make hand tools or ceremonial costumes, and some were used to make toys for children. Buffalo horns became cups, ladles, or ornaments for headdresses. The stomach and intestines were made into

pouches and buckets. Blood was used as paint or as the base for a tasty bowl of soup. Sinew, the tough tissue connecting muscle to bone, was used for thread, bowstrings, and glue.

Another important buffalo product was something people could find on the ground anywhere the buffalo had passed: the dung or droppings, also known as buffalo chips. Dried buffalo chips were the main source of fuel for campfires. (They did not smell bad because they were little more than digested clumps of grass, which was the only thing the buffalo ever ate.) There were some trees on the Plains, and people could find firewood if they needed it. But Plains tribes did not have access to large forests like tribes in the Great Basin or Northwest Plateau. Plains tribes used some wood to make the frames for their tepees and sleds, or litters, to haul their belongings from one camp to another. Otherwise, almost everything they needed in order to survive came from the buffalo.

Most tribes of the Plains and neighboring regions were seminomadic. This means that they did not live in one place all year long. For example, Plains tribes usually followed the buffalo, but they also went to special camps during the frigid winters. Tepees were built using only buffalo hides and wooden poles, but they could stand up to thunderstorms and blizzards.

Tribes of the Great Basin built domed houses called *wigwams*, or *wickiups*, which were cozy and safe in all kinds of weather. A wigwam had a frame made of flexible sticks over which were placed sheets of bark or mats woven from grass and leaves. Like tepees, wigwams were portable, which was important because Great Basin tribes also moved from place to place in search of food. They did not have buffalo. Instead, they gathered nuts and berries, and they hunted for smaller game like rabbits and deer. They had access to good clay, so they made pottery. They used stone tools. Stones could be reshaped and sharpened for use as heads for arrows, spears, and axes, as well as made into tools for digging, scraping, grinding, and other daily tasks.

People of the Plateau lived in wigwam-type lodges, too. There, the soil was dry, and food was sometimes hard to find. There were few edible plants, and it was hard to grow crops. Hunters were lucky if they were able to find a jackrabbit, deer, or occasional bear. However, the Plateau tribes did not need to search for food on land; all the nearby rivers and streams were loaded with big, tasty salmon and other fish! The Plateau tribes were as good at fishing as the Plains tribes were at hunting buffalo.

The Mandan

Not all tribes of the Plains and surrounding regions were nomadic. Some, like the Mandan, learned to grow corn, beans, and other crops. They hunted for buffalo, too, but they grew enough food so that they did not need to move and follow the herd. They could afford to build permanent villages and wait for the buffalo to come to them. During their westward adventure, explorers Lewis and Clark encountered the Mandan and wrote about their way of life. They were impressed with the size and wealth of the villages. There may have been over 15,000 Mandan living in nine large villages. In addition to farming and hunting, they were active traders. They traded various animal furs, buffalo products, and crops with surrounding tribes. Later, after more contact with traders and settlers from the United States, the Mandan traded guns and horses.

Horses

The Spanish brought many horses from Europe. They traded some horses to Native Americans, but many more simply escaped into the wild. Native Americans learned to train and ride horses. Horses eventually transformed a way of life for many tribes. This was especially true on the Great Plains, where horses made hunting, traveling, and fighting much easier.

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The tribes of the Great Plains are certainly not alone in the Americas. There are others, and if you walk far enough in any direction, you will find them. North, south, east, or west, there are different tribes in every habitable place. Over thousands of years, they have learned to survive.

In the southwest, you will meet the Navajo, Pueblo, and all the other tribes of the canyons and deserts. Head southeast and you will find the Cherokee, Creek, and Seminole thriving in the humid woods and swamplands. In the dense, chilly forests to the northeast, there are the Huron and the Six Nations of the great Iroquois Confederacy. To the west, on the dry, flat plateau between the snowy peaks of the Teton and Cascade Mountains, you will meet Shoshone and Nez Perce. Farther west, where trees grow as tall as mountains, you may meet the Chinook, the Pomo, and all the other tribes nestled along the western coast.

Some of the people you meet will be your friends. You will share stories, and you will trade with them. Some of them will be your enemies, just as they were enemies to your grandparents and great-grandparents, and they will want to fight. This is the way it has always been, and so you will need to be prepared if you travel from your homeland.

If you are like most Native Americans living on the Great Plains, you will find that you are quite happy to stay and live with your family and friends, the members of your tribe. You do not need to wander too far from home. You will live here on the plains forever, tracking and hunting the buffalo, raising children of your own, and teaching them how to live according to the ways of your ancestors. Life is just fine here on the plains. You have everything you need, and little changes, until it does . . .

ACTIVITY PAGE **3.1**

NAME: _____

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When Did It Happen?

Below is a sample list of transitional words used in text and speech that help identify when an event occurred. Often the words are used in combination with each other.

- after
- afterward
- always
- at length
- before
- during
- earlier
- following
- frequently
- immediately
- in the meantime
- in the morning
- later
- meanwhile
- never
- next
- now
- once
- simultaneously
- so far
- sometimes
- soon
- subsequently
- that day
- then
- this time
- until now
- when
- whenever
- while

Directions: Read the passage on Activity Page 3.2 with a partner. Examine the text for transitional words or phrases. Are there any new words or phrases you could add to the list above? If so, list them here:

_____

_____

_____

_____

When Did It Happen? cont.

Directions: Read the passage below. Underline transitional words or phrases. Remember, transitional words identify when something happened.


Chif Spotted Elk

Even though Spotted Elk was sick and most of the people in his group were women and children, the soldiers were still afraid the Lakota might try to cause trouble. That night, as the Lakota rested at Wounded Knee Creek, the Seventh Cavalry surrounded the camp and set up four Hotchkiss guns on nearby hills. Each Hotchkiss gun looked like a little cannon, but it had five revolving barrels, so it could fire bullets very rapidly, much like a modern machine gun.

The next morning, December 29, soldiers moved into the camp and demanded that the Lakota surrender all their weapons. There were only about 100 or so warriors in the group, and they were surrounded by nearly 500 cavalry. They were not happy, but most Lakota realized that they had no choice and handed over their guns. Others had no weapons at all. However, a few refused to surrender their weapons. They argued with the soldiers, and someone fired a shot. To this day, nobody knows for sure who fired that first shot. It might have been an accident. It really does not matter, though, because there is no doubt as to what happened next. As soon as that first shot rang out, all the soldiers opened fire, not only with their rifles, but also with the powerful Hotchkiss guns. Some Lakota warriors tried to fight back, but most were killed before they had a chance. The fight was done in a matter of minutes. Really, it was not a fight at all; it was a massacre. When it was all over, at least 250 Lakota men, women, and children were dead, including Spotted Elk. Some estimates run as high as 300, but it is impossible to know for sure.

The Wounded Knee Massacre is remembered as the final fight of the Sioux nation, even though it really was not much of a fight. It symbolizes the end of nearly 400 years of armed conflict between Native Americans and the powers of Europe and the United States. But you already know this was not really the end. In fact, history shows that Wounded Knee was, in certain ways, a new beginning. Many years would pass, but gradually Native American tribes reclaimed their cultural heritage and their status as America's First Nations. We cannot change the past, but we can seek the truth about what really happened. We can show respect for the lands and rights of the First Nations. Every American should feel a responsibility to help ensure that Native American cultural heritage is protected for future generations.

Men, women, and children set off for Pine Ridge.

The Swift Blue One

The image of a brave warrior on horseback gazing over his beloved prairie or canyon is perhaps one of the things that comes to mind when we think of Native Americans. Horses were, and remain, essential to many Native American cultures. There was a time, though, long ago, when Native Americans did not know about horses.

When Native Americans first saw the Spanish conquistadors on their horses, they wondered if man and horse were one beast, for they had never seen a human riding any kind of animal. The Comanche soon realized this was not true, but many years would pass before they learned to talk to the horses and ride them like the Spaniards did.

There was once a great horse that all the Comanche feared. This horse ran wild on the prairies, and none of the Comanche would go near him, for he was fierce and powerful. They let him roam and never tried to catch him. The horse was easy to identify because he

always wore a saddle and the remnants of a blue, silk blanket on his back. This is a story of how the horse with the blue blanket came to roam free on the prairie.

The Swift Blue One (Comanche)

One day, a brave young Comanche warrior was out hunting when he saw a Spanish soldier riding on a horse. The soldier wore heavy metal armor, and he carried a gun and a long, sharp sword. Perhaps this soldier was lost, or perhaps he was a scout sent to discover what was over the next hill. The young Comanche warrior and his people considered the Spanish to be enemies, for the Spanish, with their guns, sharp steel swords, and powerful horses, sometimes attacked the Comanche camps.

Fear and anger rushed through the Comanche's veins, and he rose from his hiding place in the tall grass and shot an arrow at the Spaniard. The arrow found its way through a crack in the soldier's armor, and he fell from his horse to the ground with a loud thud. Wounded, he moaned in pain. His horse stood over him and did not move.

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The Comanche wanted to approach the Spaniard to inspect his strange weapons and armor, but when he drew near, the horse snorted angrily and beat his front hooves on the ground. The Comanche was afraid of the horse, and he backed away. He wanted the horse to leave, so he snarled and growled and yelled at him, but the horse still did not budge. The Comanche did not speak the horse language, and he did not know what to do next.

The Spaniard could see that the Comanche wanted to talk to the horse. Using sign language, the Spaniard told the Comanche that he would teach him the horse language if the Comanche would spare his life. The Comanche agreed. The Spaniard taught the Comanche the words people use to make the horse go and stop, walk and gallop. The Comanche repeated the words again and again until he knew them and could say them to the horse.

The Comanche tried to save the Spaniard's life, but the arrow was too deep, and he died anyway. The horse had a soft, blue blanket and a saddle on its back. The Comanche did not remove either because he thought the horse wanted them. Then the Comanche got onto the horse's back and spoke the horse language, and the horse carried him back to camp.

The other Comanche were amazed when they saw him. He told them his story and showed them how he had learned to make the horse go and stop, walk and gallop. After that, the Comanche warrior always rode the horse, and he became a fearsome warrior and a great hunter. He named the horse The Swift Blue One because he was as fast as the wind. The other warriors were afraid of the horse, and they thought he would ride over them and crush them with his big hooves.

One day, the warrior was killed in battle, but The Swift Blue One survived. The other Comanche were still afraid of the horse, so they set him free to roam on the prairie. They would see him out there sometimes, running as fast as the wind, with a saddle and blue blanket on his back.

In time, more horses escaped from the Spanish soldiers, and these horses joined The Swift Blue One out on the prairie. He became their chief, and they followed him everywhere. The Swift Blue One's herd grew and grew, until there were too many horses to count. Eventually, other Comanche learned the horse language, and the horse culture spread. Many of the horses ridden by the Sioux, Apache, Pawnee, and other tribes of the Great Plains and beyond are the descendants of The Swift Blue One.

White Buffalo Calf Woman

White Buffalo Calf Woman (Lakota Sioux)

On the Great Plains, among the Lakota and other Sioux nations, it was customary for young people to embark on a Vision Quest. A Vision Quest helped to guide a young person's actions and decisions as an adult. The Vision Quest was just one of seven sacred ceremonies practiced by the Lakota. According to Lakota legend, the people learned these seven ceremonies from White Buffalo Calf Woman.

Many years ago, when the Sioux people were young and had not learned their way in the world, the bands of the Lakota tribe met for a council. This was during a terribly hot summer when the land was parched and the buffalo had moved so far away that the people could not find them. This was before the Sioux had horses, so they had to travel on foot, and sometimes they could not keep up with the buffalo.

Two brave, young men went out to scout for buffalo. They searched everywhere, but they could find no signs of buffalo or anything else to eat. One day, they saw a hill and decided to climb up to see what they could see. In the distance, they spied something strange coming toward them. At first they could only make out a small speck, and they could not tell whether it was moving on the ground or in the air.

As it neared, they saw that it was a human figure. As it came nearer still, they could see that it was a beautiful, young woman. She wore clothing of bright, white, buckskin decorated with beautiful, colorful designs. Two dark braids of hair dangled down, and she had red dots painted on each cheek. The two men could see that she was no ordinary woman. They realized she was a wakan, a sacred and powerful thing.

One of the men trembled with fear as the wakan stranger approached. The other, however, was smitten with love. "She is the most beautiful woman I have ever seen," he told his friend. "I want to marry her."

One of the men trembled with fear as the wakan stranger approached. The other, however, was smitten with love.

"Do not go near her," said the other. "You must respect her and do as she says."

But the love-struck man did not listen to these wise words. Instead, he approached the wakan stranger. Suddenly, a cloud of smoke enveloped both of them. The other man could not see through the smoke, but when it finally cleared, the woman was alone, and all that remained of his friend was a pile of scorched bones!

Truly afraid, the young man raised his bow and pointed an arrow at her. She said, "Do not harm me. I am White Buffalo Calf Woman, and I bring good things for you and your people."

The young man dropped his bow and listened, comforted by her kind words.

"Go home and tell your chief to raise the medicine tepee and prepare for my arrival. In four days I will bring my gifts to your people."

The young man hurried home and shared the news. Some people did not believe him. They thought he must be crazy with hunger. But the chief heard the words and commanded his people to raise the great medicine tepee, the largest tepee, which they used for the holiest ceremonies.

Sure enough, four days later the people saw the White Buffalo Calf Woman approaching the camp. In her arms she carried a large bundle.

The chief invited her into the medicine tepee. Inside, she told the people to make an altar of red earth in the middle of the tepee and to place a buffalo skull upon it. She also told them to make a small rack using three sticks. Then she opened her bundle and removed a special object, the sacred pipe, called chanunpa*, which she placed on the rack.*

Into the pipe she put bark of the red willow tree, and she placed a buffalo chip on the fire. The buffalo chip made the everlasting fire, the fire to be passed from generation to generation. Then she lit the pipe. "The smoke of this pipe is the breath of the Great Spirit, Tunkashila," she said. She taught the people to pray using the sacred pipe. "With your feet on the ground and the smoke of the pipe rising to the sky, this pipe forms the connection between you and the Great Spirit."

She taught them the pipe-filling song, and how to raise the pipe toward Grandfather Sky, and then toward Grandmother Earth, and then in all four directions. She continued, "The wooden stem of the pipe represents all the things that grow on the earth. The bowl at the end of the stem is the buffalo, which is the flesh and blood of your people. Twelve feathers hanging from the stem represent the spotted eagle, messenger of the Great Spirit. And engraved in the bowl there are seven circles. These are the seven sacred ceremonies you will practice with the pipe."

These are the seven ceremonies she taught the people: the Sacred Pipe Ceremony; the Sweat Lodge; the Vision Quest; the Sun Dance; the Making of Relatives; the Keeping of the Soul; and the Preparing of a Girl for Womanhood. These are the seven ceremonies practiced by the Lakota Sioux, which they learned from White Buffalo Calf Woman.

New Settlers Bring Change

Directions: Read the paragraphs below to find out how European settlement in North America affected Native Americans.

Horses

The Spanish brought many horses from Europe. They traded some horses to Native Americans, but many more simply escaped into the wild. Native Americans learned to train and ride horses. Horses eventually transformed a way of life for many tribes. This was especially true on the Great Plains, where horses made hunting, traveling, and fighting much easier.

Different Ideas About Opportunity and Prosperity

Europeans who migrated to the Americas did not share the same traditions and beliefs as Native Americans. Aside from their culture, religion, and technology, Europeans had different beliefs regarding land ownership and individual rights and liberties. To understand just how very different they were, it is important to reflect on what life was like in Europe.

In the late 1400s, Europe was just emerging from the feudal system of the Middle Ages. Most people were still tied to farming the land, the bulk of which was owned by rich, influential members of the nobility. There was no "free" land to explore and settle on. There was little social mobility. For three hundred years after Columbus's first journey, the exploration and colonization of the "New World" brought incredible new wealth to European nations. However, a large part of that wealth went straight to the same royals and aristocrats who already owned all the land and resources in the "Old World."

Then came the founding of the United States in 1776. This new nation put in place systems of laws designed to protect the right to "life, liberty, and the pursuit of happiness." Now, the New World offered new hope and opportunity for even the most lowly members of European society. The New World offered land, ready to be farmed, to all, including those who would never have had such an opportunity in their own countries.

However, it wasn't quite that simple. By the late 1700s, land in the East had been claimed, and there was stiff competition for jobs. Therefore, many new immigrants looked beyond the East to the frontier—the untamed wilderness—for opportunities.

Christianity and "Civilization"

Spanish settlers colonized California beginning in the mid-1700s, and things changed quickly for Native Americans. Instead of trying to push the California tribes out of the way, the Spanish sent missionaries to persuade the people to change their way of life. Missionaries were determined to convert the native people to Christianity, to educate and, in their minds, "civilize" them, and to teach them to become farmers. A typical mission included a church and new houses for Native Americans, plus thousands of acres of farmland.

However, while the missionaries offered peace, they had brought soldiers with them, too. They gave the tribes a choice: live at the mission, or fight against these soldiers. Once they moved to the missions, Native Americans had to dress like Europeans. They had to stop practicing their own beliefs and customs. Mostly, however, they worked the farmland—essentially a kind of forced labor.

Disease

European explorers and settlers brought a deadly weapon to the Americas: disease. Smallpox and other illnesses devastated Native American populations in southern California. The people had no immunity to these diseases. Within a few years, some tribes were almost totally wiped out. The survivors had little choice but to live at the missions.

Eventually, the Native American groups of northern California suffered a similar fate. First came the explorers, followed by the miners and the settlers. These new arrivals were all hungry for the land and its resources. They came by the thousands to mine and to build farms and railroads and cities. They had guns, plus help from the US Army, and they were determined to own every inch of valuable land in California. Tribes were forced to move onto small reservation lands. Those who refused were often massacred.

Reservations

By the late 1880s, nearly all Native Americans had been forced onto reservations or assimilated into U.S. society. Forcing people onto reservations did not bring peace. Even on the reservations, far away from their ancestral lands, stripped of their culture and forced to learn a new way of life, some Native Americans would not give up the fight.

Owning Land as Individuals

Eventually, Congress passed the Dawes Act (officially the General Allotment Act of 1887). The Dawes Act was the final act that forced an end to the conflict between the United States and Native American tribes. This act "did away with" reservations altogether, based on the belief that the only path to survival for Native Americans was for them to assimilate and own land as individual family farmers. It did not simply take more land or carve up existing reservations, the Dawes Act actually aimed to destroy the heart of Native American cultural identity, the one thing no other treaty or act of Congress had done.

Under the Dawes Act, reservations were broken up, and Native American families who lived on those former reservations received 160 acres of land, the same amount granted to settlers, or homesteaders, by the Homestead Act. This act forced Native Americans to work and survive as individuals and not as part of a tribe. However, most of the acreage that was allocated was on existing reservation land that was usually unsuitable

for growing crops. While most homesteaders had a good chance of making a living off their 160 acres, most Native Americans had no such luck on their dry, dusty allotments. Any land not claimed by Native Americans was made available for sale to non–Native American settlers. Those who could not earn a living from their allotment had to sell their land to non–Native American settlers for needed cash. The former reservation homelands were chopped up into many little pieces, and hunting and fishing territory was lost. Many people left the former reservation land and never returned. Those who remained struggled to survive. Worst of all, rather than a sense of belonging to the land, they felt a sense of isolation and sadness. The people were scattered, and all that remained—it seemed—were stories and memories.

NAME: _____

DATE: _____

4.2 ACTIVITY PAGE

LANGUAGE STUDIO 8: NATIVE AMERICANS

Results of European Settlement

Directions: Use the two-column note format to record ideas.

Main Idea	Supporting Details
Results	

NAME: _____

DATE: _____

LANGUAGE STUDIO 8: NATIVE AMERICANS

The People of California

It is impossible to know exact numbers, but best estimates are that there were around 300,000 Native Americans in California when the first Spanish settlers arrived. There were well over 100 different tribes and a wide variety of cultures, languages, and customs. Mostly, they lived in small villages ranging from a hundred to a thousand people. There were no formal borders or property lines, but each tribe was adapted to life in a specific area.

All of the California tribes lived a hunter-gatherer lifestyle. Acorns were a major source of food throughout the region. Acorns are nuts from the oak tree. You would not want to eat an acorn raw because the taste is very bitter. If you grind it up into flour and soak it, you can remove most of the bitterness and use it to make tasty bread. Fish were another major food source for many tribes. The tribes caught fish from the ocean, the rivers, and the lakes. Besides acorns and fish, each region had various animals and plants for people to hunt and gather, such as rabbits and deer, plus various roots, berries, and other gifts from nature.

Trade was also an important part of tribal life in California. If they could not find what they needed in nature, the people could trade with a neighboring tribe. Coastal tribes had access to lots of fish, but they needed more acorns. Inland tribes had plenty of acorns but not always enough meat. Tribes in the central mountains had access to a special rock called obsidian, or volcanic glass, which was valuable for making razor-sharp arrowheads and knives. Obsidian was far more valuable to Native Americans than gold or silver. They did not find too much use for those metals, though they did know where to find them.

LANGUAGE STUDIO 8: NATIVE AMERICANS

Canoes played an essential role in the culture and lifestyle of nearly every California tribe. Different regions made different kinds of canoes. In southern California, they built big *tomols* out of wooden planks. Only specially trained craftsmen could build them, and they never shared their secrets! Tomols could carry several paddlers and hundreds of pounds of trade goods. Best of all, the sturdy, speedy tomols were seaworthy, so southern tribes could paddle up the coast and trade with northern tribes.

In the Central Valley, the people made their canoes by weaving long, tough reeds, or river grass. There they did not need to paddle into the rough ocean. Instead, they had wide, lazy rivers and sparkling lakes. And all the way up north, where the great redwood trees grow up into the clouds, people made dugout canoes from hollowed-out logs. Dugout canoes were tough enough for the ocean but also enough to survive the wild mountain rivers.

Daily life focused on securing enough food for everyone. Fortunately, California was a land of plenty, so if everyone worked hard there was usually enough food to go around. In good years, there was more than enough food, so the people had time for other things. Basket weaving was common throughout California. Tribes of the Central Valley were highly skilled, producing a variety of colorful baskets in all shapes and sizes.

As with all Native Americans, the people of California built their houses using the best materials available in their home territory. Southern tribes used small trees and reeds to build *tules.* A *tule* was a round, one-room hut. Despite being made from reeds, tules were strong, able to withstand wind and rain, and cozy enough for mild, southern California winters. The Miwok people and other tribes of central and northern California preferred the *umacha*, which was shaped like a tepee but made of long, wooden rails instead of buffalo hide. Farther north, in the redwood forests, the Wiyot people and their northern neighbors built stout, sturdy houses out of redwood planks.

Roundhouses were the central feature in most villages. No matter what type of houses they built, and no matter whether the tribe was large or small, wealthy or poor, there was almost always a roundhouse in the middle of the village. The roundhouse was used for ceremonies and important meetings. The roundhouse was also where the tribal religious leaders, or *shamans*, carried out important rituals.

Religious beliefs reflected a close connection to the cycles of nature and to animals. While all tribes had unique beliefs, myths, and rituals, the people generally believed they shared a special kinship or bond with other living things. They felt fortunate and thankful to live in a place with so many resources.

The Prefix *fore–*

The prefix fore– implies before, or earlier; at the front of something, or in front; or the front part of something.

Directions: Use the definition of the prefix fore– to make predictions about the following words. Write what you think each word means on the line below it. Compare your predictions with a partner.

forearm

_____

forebear

_____

forewarn

_____

foreground

_____

foretell

_____

forestall

---

foregone

---

forehead

Raven Steals the Light

Raven is a very important character in the mythology of most Pacific Northwest tribes. He is featured in numerous stories, many of which are creation myths. Creation myths explain how the world began and how people and various animals came into the world. However, in this tale, Raven is not really a creator. He is actually a trickster, meaning that he makes things happen by tricking other characters. The following story explains how light was hidden and then restored.

Many years ago, in a house on the banks of the Yakima River, there lived an old man and his grown daughter. You would not have known by looking at his little house, but the old man was very rich. However, he was also very greedy. Every year, many salmon swam past his house. He always caught many more than he needed, and he chased away anyone else who tried to catch them. "Go away!" he yelled. "Those are my fish."

"These are not your fish," the people told him. "The river gave them to us."

But the old man ignored them. "You'll be sorry if you take my fish again," he warned.

When he saw a woman gathering firewood in the forest near his house, the old man yelled, "That is my firewood! Go away and find your own."

The woman held up the sticks and said, "You do not own this wood. The tree gave it to me."

The old man only shook his fists and warned, "You'll be sorry if you take my firewood again!"

The old man was so greedy that he would not even share with his own daughter. He would not let her take fish from the river. She was allowed to gather roots and berries to eat, but only if she walked far away from the house so she would not gather any of his foods. When he caught her eating blackberries from a bush near the house, he yelled, "Those are my berries! You'll be sorry you took them!"

"But the bush gave them to me," his daughter said, in a meek, nervous voice.

This made the old man very angry. He was tired of people stealing from him, but he knew how to stop them once and for all. People could not steal his things if they could not see them. However, he was so rich, he could not hide all the things he owned, so he decided to hide the light instead.

The old man took the sun and moon and all the stars from the sky, and he put them in a box. He hid the box in his house and refused to tell anyone where it was. Then the whole world was dark. When people needed firewood, they had to crawl out into the darkness and search the ground with their hands until they found something that felt like wood. When they were hungry, they had to crawl into the river and feel around in the water until a fish swam into their hands.

Life without light was very hard, and soon the people were cold and hungry, and a sadness filled their hearts. But Raven heard about the greedy old man who stole the sun and moon and stars, and he came up with a plan to steal them back!

Raven followed the old man's daughter when she went out searching for food. She searched in the darkness and found a blackberry bush. The thorns pricked her fingers as she searched for berries. Clever Raven turned himself into a blackberry, and she picked him and ate him. Then Raven was in her belly, and he became her child.

Months later, Raven was born. The old man did not like having a baby in the house. To make matters worse, Raven grew very quickly, and soon he was a curious, energetic boy. He asked questions about everything, and he always wanted the old man to tell him stories, sing songs, and play games. The old man did not like to do any of these things, but Raven asked him every day, anyway.

"Grandfather, I am bored," Raven said. "Will you play a game with me?"

"No."

"Will you tell me a story?"

"No."

"Then what can I do? I am bored!"

The old man fumbled around in the dark, trying to find something for Raven to play with. Raven refused everything he offered. "I already played with that. That is boring," Raven said. "If only I could see, then maybe I could find something to do. But it is too dark."

Then the old man had an idea. He went to his secret hiding place and pulled out the box. He gave the box to Raven and said, "Here, play with this. This will keep you busy for a while. Just don't show anybody else! Now, leave me alone."

Raven opened the box, and the light of the sun and moon shone on his face. Then the old man could see that he had been tricked! Grasping the box in his talons, Raven flapped his wings and flew out of the house. He flew and flew, way up high into the sky, and there he emptied the box, and the sun and moon and stars all returned to their places, and the light was restored.

Thunderbird and Killer Whale

Thunderbird is a mythical creature common in most Pacific Northwest cultures. It is also a common theme on totem poles or ceremonial costumes. In most stories, Thunderbird was a kind and powerful creature that often helped people. The story of Thunderbird and Killer Whale appears in many tribal mythologies. Like many myths, this one was used to explain certain aspects of nature or important events. There are two natural events, or phenomena, explained in this story. Can you tell what they are?

One day Killer Whale arrived in the waters and attacked all the other fish. Killer Whale was hungry, and he ate many fish. The fish he did not eat were so scared they swam away to other waters. Then, the people could not find any fish for themselves, and they began to starve.

Thunderbird was a big, mighty bird. His bright, colorful feathers were as long as canoe paddles, and his talons were like harpoons. When he flapped his great wings, the sound of thunder rumbled through the skies.

One day, Thunderbird was flying along the coast. He looked down and saw that the people were starving. This made Thunderbird sad, because he loved the people and did not want to see them suffer. He asked them why they did not have any fish, and the people told him about Killer Whale. This made Thunderbird very angry.

Thunderbird found Killer Whale and swooped down out of the sky. Thunderbird grabbed Killer Whale with his talons and tried to carry him away, but Killer Whale put up a fight. He wrestled free from Thunderbird's grasp and fell down into the ocean with a great splash. The splash was so big that it shook all the waters and even the land. The waters rose up and covered the land. Trees were ripped from the soil, houses were shattered, and many people died before the ocean waters receded.

Thunderbird and Killer Whale fought for many days. At last, Killer Whale knew he could not win, and he swam away. Gradually, the fish returned, and the people had food again. Ever since, the people have never forgotten how Thunderbird helped them.

Thunderbird's wings cause the sound of the thunder. This is common in most Thunderbird myths. But this story seems to explain something else. Many researchers believe this story is about a tsunami, or tidal wave, that struck the Pacific Northwest hundreds of years ago. Tsunamis are caused by earthquakes in the earth's crust, deep beneath the ocean surface. The vibrations from the earthquake create waves, and if the earthquake is strong enough, these waves can form a tsunami. Tsunamis are very destructive when they strike land. It is no surprise that the survivors would mark the event with a myth like this.

NAME: _____

DATE: _____

5.4 ACTIVITY PAGE

LANGUAGE STUDIO 8: NATIVE AMERICANS

Analyze and Compare Four *Why Stories*

Directions: What are Why Stories like? *Prepare two-column notes about each of the four* Why Stories *you have read. Then meet with a partner to compare the stories. Look for characteristics the four stories have in common. Add any new ideas to your notes.*

Title	Details

Title	Details

About *Why Stories*

Why Stories are an important part of the Native American oral storytelling tradition. *Why Stories* were first written down about a hundred years ago.

- Native American *Why Stories*, also known as emergence stories or creation myths, use a mixture of spirituality and inventive reasoning to explain the emergence of life on Earth. They have the nickname *Why Story* because they explain why some things are the way they are and why certain things happen.
- Stories often begin with the Great Spirit or Creator, often called by a variety of names. The Creator held the knowledge of all things, but often utilized the creatures of Earth, such as the turtle, loon, and raven, to aid in creation.
- There is an interplay between the sacred and the natural.
- Many stories represent events that bend or blend the laws of nature. For instance, animals talk to humans.
- Stories reflect deep spirituality and a reverence for nature and all beings that Native American cultures share.

ACTIVITY PAGE **6.2**

NAME: _____

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Why Story Rubric

	Extending	Mastering	Developing	Beginning
Development of Narrative Text Structures and Genre Elements	Provides effective, extended development of one or more narrative text structures (logical event sequence, well-developed characters' personalities and motives, dialogue, a point of view) appropriate to *Why Story* purpose and audience	Provides effective development of the narrative elements appropriate to *Why Story* purpose and audience	Provides some development of the narrative elements appropriate to *Why Story* purpose and audience	Provides attempted development of the narrative elements appropriate to *Why Story* purpose and audience
Plot Structure and Organization	Demonstrates purposeful coherence; includes an engaging plot and a logical progression of ideas	Demonstrates a coherent plot and a logical progression of ideas	Demonstrates a progression of ideas that approaches coherence; includes a beginning, middle, and end	Demonstrates an attempt at coherence with some evidence of a progression of ideas, such as a story summary
Language and Conventions	Demonstrates bridging use of transitional words and phrases	Demonstrates expanding use of transitional words and phrases	Demonstrates emerging use of transitional words and phrases	An attempt is made to use transitional words and phrases

Using Common Transitional Words

Directions: Write a sentence that mimics the model sentence. Use the transitional word or phrase written in bold.

then

My mom picked me up at school, then we went to the grocery store.

while

I waited for my friend while she changed her clothes.

meanwhile

I was at home lying in bed sick on Friday. Meanwhile, my class was on a field trip to the amusement park.

Challenge:

Describe the differences in the way *while* and *meanwhile* are used.

ACTIVITY PAGE **7.1**

NAME: _____

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LANGUAGE STUDIO

LANGUAGE STUDIO 8: NATIVE AMERICANS

Review the Prefix *fore–*

Directions: Draw a line to match the word with its meaning.

foreword	the leader of a group of workers
foreman	morning
foreleg	most important; first in time, place, or order
forenoon	section at the beginning of a book
foremost	the front leg of an animal

Directions: Choose two words from above with the prefix fore– and create an illustration for each in the boxes below.

Word _____	Word _____

Peer Editing Guide

Responder	Writer
As writer is reading piece aloud: • Listen. • Do not interrupt the writer as she or he is reading the piece. • Give your full attention to the writer and show it with eye contact and body language. *When writer is finished reading:* • Respond to the piece as a whole. • Begin with the strengths of the writing. • Focus on what is on the *Why Story* rubric. • Write feedback directly on the piece. *Avoid:* • Comments that do not offer helpful suggestions. • Automatic approval or blanket praise. • Dominating the discussion. • Off-task conversations.	• Read your work aloud. • Mention if there is anything specific you would like the responder to focus on. • Ask for feedback. • Listen to the feedback. • Avoid interrupting. • Feel free to point out what you think the strengths of the piece are. • Be receptive to suggestions. • Avoid shutting down the responder's ideas. • Remember to say thank you.

ACTIVITY PAGE **8.1**

NAME: _____

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A Difference in Perspective

What was it about the cultural identity of Native Americans that could not be easily erased or forgotten? The answer to this question is both simple and complicated: land. It is simple because it is easy to see why the land was so important to Native Americans. It is complicated because, according to Native American traditions, there is more to land than dirt and rock. There is more to it than plants, animals, and all the resources necessary for survival. Land is not simply a place where a tribe lives. Land is part of the tribe itself. Land is the thing that makes the tribe whole.

LANGUAGE STUDIO 8: NATIVE AMERICANS

Anyone can learn to hunt, but how many people know how to make a perfect bow and arrows using only materials available on the grassy prairies? How many people can look at the forest floor and immediately know what kinds of animals have walked through the area in the past few days, how big they were, and in which direction they were headed? How many can predict the weather by watching birds or observing the moon? How many people do you know who can find enough food in the desert to feed an entire extended family of 50 or more people? To not only survive but also to raise a family and live comfortably in the forest, plains, or desert requires great skill and knowledge, more than a single person could teach himself or herself. Living such a lifestyle brings people into direct and intimate contact with nature, with the land itself, as well as with the sky and waters and with other people with whom they must work and share in order to live.

Native Americans were well adapted to the cycles and patterns of nature. Whether they lived in a small fishing village or a large, sprawling farming society, they learned to survive in harmony with their surroundings. They used wood from trees, but they did not cut down all the trees. They used every part of the buffalo, but they did not kill all the buffalo. They made jewelry using stone or shell beads and sometimes copper, but they did not destroy the mountains and rivers to get all these materials. They gathered nuts and berries, but not too many, and they always left enough new seeds to sprout for future generations.

Through their myths and spiritual ceremonies, Native Americans gave thanks and praise to nature's helping spirits—the plants, animals, waters, and sunshine. But they also asked the spirits for safety and mercy. They asked to be spared from famine, drought, and war. Most years, the people were happy, well fed, and at peace with their neighbors. But they knew there would also be **lean** years when the buffalo herds were too thin, or too little rain fell on the corn and bean crops. They knew there would be wars and conflicts with other tribes as well. Some tribes controlled better land with more food and resources than other tribes. Some tribes grew to be large and dominant, while others simply

survived from season to season. Some tribes faced more trials and tribulations than others. Sometimes, one tribe would force another tribe off its land, so, for example, an Eastern Woodland tribe might have to adapt to life on the plains, or a Plateau tribe might have to learn to survive in the desert. Sometimes the victors of war would take the losers captive, or adopt them into their tribe. Other times, mighty tribes fell and weaker ones rose up.

Everything changed, and yet in many ways everything stayed the same. In spite of all of life's challenges, Native Americans upheld their way of life for thousands of years. Wherever they were, they strived to live in harmony with their surroundings. They lived according to the same patterns and cycles as everything else in nature. When the acorns ripened and fell, then it was time to gather and eat acorns. When the buffalo moved, it was time to move the village. And when the spring rains fell, it was time to plant new seeds. Year after year and generation after generation, according to these cycles, Native American tribes created their own history.

Europeans who migrated to the Americas did not share the same traditions and beliefs as Native Americans. Aside from their culture, religion, and technology, Europeans had different beliefs regarding land ownership and individual rights and liberties. To understand just how very different they were, it is important to reflect on what life was like in Europe.

In the late 1400s, Europe was just emerging from the feudal system of the Middle Ages. Most people were still tied to farming the land, the bulk of which was owned by rich, influential members of the nobility. There was no "free" land to explore and settle on. There was little social mobility. For three hundred years after Columbus's first journey, the exploration and colonization of the "New World" brought incredible new wealth to European nations. However, a large part of that wealth went straight to the same royals and aristocrats who already owned all the land and resources in the "Old World."

LANGUAGE STUDIO 8: NATIVE AMERICANS

Then came the founding of the United States in 1776. This new nation put in place systems of laws designed to protect the right to "life, liberty, and the pursuit of happiness." Now, the New World offered new hope and opportunity for even the most lowly members of European society. The New World offered land, ready to be farmed, to all, including those who would never have had such an opportunity in their own countries.

However, it wasn't quite that simple. By the late 1700s, land in the East had been claimed, and there was stiff competition for jobs. Therefore, many new **immigrants** looked beyond the East to the frontier—the untamed wilderness—for opportunities.

By 1850, people realized that all the land—the American West as it came to be known—was not only vast but also full of resources. It did not take long for this news to travel to Europe. For those escaping the troubles of the Old World, the American West seemed like a haven. There, anyone could live free and prosper if they were willing to work. Also, as it turned out, they needed to be willing to fight or "manage" the Native Americans who had been living there for thousands of years.

Throughout the second half of the 1800s, immigrants, largely from Europe, flowed into the United States. Many became pioneers, risking everything for a chance to settle and build new lives. Generally, pioneers were not there to live in harmony with nature or abide by Native American customs and laws. They were there to tame the land and gain wealth from it.

NAME: _____

DATE: _____

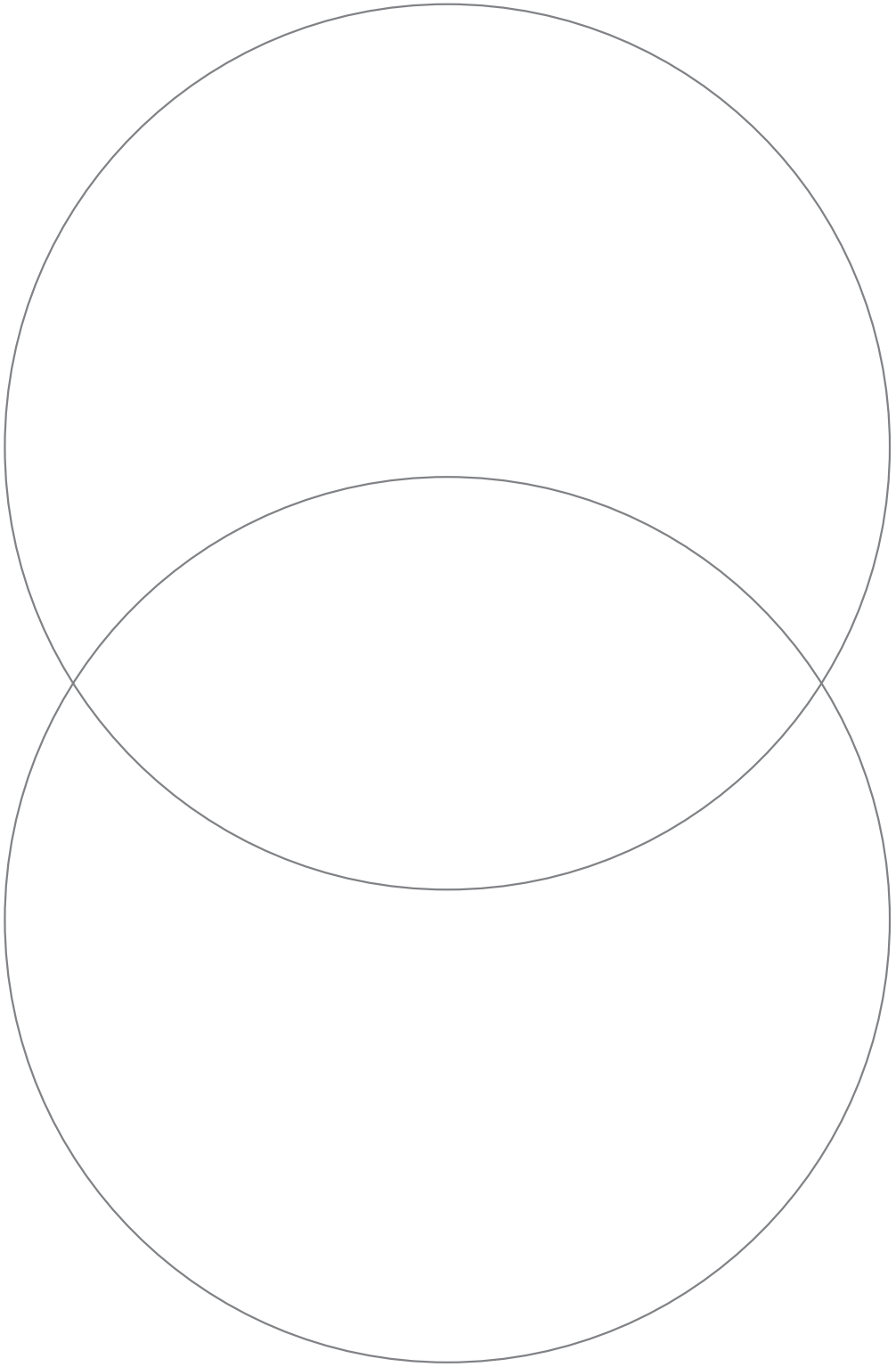
LANGUAGE STUDIO 8: NATIVE AMERICANS

Compare Native American and European Cultures: Venn Diagram

Directions: Compare and contrast Native American and European cultures by listing the differences between the two groups to the left and right under the headers and listing similarities in the center.

European Settlers

Native Americans



The People of the Pacific Northwest

What do you imagine when you think of a rainforest? Perhaps you imagine a hot, humid place with heavy vegetation and trees filled with exotic parrots and monkeys. You might also imagine snakes and all sorts of bugs. It is true that most rainforests are steamy jungles located in tropical regions of the Americas, Africa, and Asia. However, not all rainforests are in the tropics. Some rainforests grow in the temperate zone, where the weather is never too hot or too cold, but it is often very wet.

The Pacific Northwest region includes much of Washington State and Oregon, plus the western flank of Canada, called British Columbia. Temperate rainforest blankets the coastal parts of this region. The steady rains and mild temperatures are perfect for plant growth. Spruce, hemlock, and fir trees can reach heights of 300 feet or more. Beneath the dense treetop canopy, the forest floor is a carpet of thick mosses, fluffy ferns, and lichens. The climate is good for animal life, too. There are hundreds of different bird and fish species. There are at least 140 different mammals, including some very large elk, bighorn sheep, mountain lions, gray wolves, and the occasional grizzly bear.

Fishing for Salmon

The Pacific Northwest is also a good habitat for humans. By some estimates, Native Americans have lived there for as many as 500 generations, or 15,000 years. The area was once home to at least 30 tribes, hundreds of villages, and a huge variety of languages, customs, and beliefs. All the tribes had a hunter-gatherer lifestyle, but they did not need to move around in order to find food. They lived in large, permanent villages. They did not need to farm either. Everything they needed was readily available in the forests and waters. As long as they respected those resources, then there was always enough to go around. In fact, there was usually more than enough for everyone.

A very important food source for most tribes was salmon. They could always depend on salmon to swim up the rivers every year. One important thing to know about salmon is that they are born in rivers, but they live most of their lives at sea. When they are adults, they return from the sea and swim back up the rivers, to the very same places where they were born. There, they lay their eggs and die. The eggs hatch, the baby salmon find their way to the sea, and the cycle continues.

The other important thing to know about salmon is that they are very nutritious! The people of the Pacific Northwest certainly knew this, and they became master fishermen. Some tribes fished using baskets, nets, spears or harpoons, and a variety of ingenious traps to catch salmon.

However, salmon are only available to catch in the rivers for a few months each year, when they return to lay their eggs. For the remainder of the year, they are in the ocean. Therefore, if you depend on salmon for food, you will have to supplement your diet. Native American men in this region hunted the big mammals that roamed the rainforests. Women gathered roots, berries, and grains, including wild rice. Many tribes went after other types of fish, as well as whales and seals, the mammals of the sea.

The Whale Hunters

One tribe, the Makah, were famous whalers. They used long, fast canoes to chase whales in the rough Pacific waters, and they killed them with long, sharp harpoons. This is how they hunted huge gray whales and humpbacks, which can weigh up to 80,000 pounds (about the same as four school buses). Imagine hunting a creature that size from the front of a canoe with a harpoon! This was very dangerous work, but it was worth the risk, because one whale could feed a whole village for months. After they killed a whale, the hunters towed it to shore, and the whole village would come out to help cut up the meat, salt it, and hang it up to dry.

This preserved the meat for later use. Just as Plains tribes used all parts of the buffalo, Pacific Coast tribes used the whole whale. They took oil from the whale's blubber to use for cooking, tanning hides, or covering wounds and bug bites. Whale oil was also valuable in trade to inland tribes. Bones were used to make scrapers, fishhooks, and other tools.

Like other Native Americans, the people of the Pacific Northwest did not take anything for granted. After they hunted any animal—whether it was a salmon, whale, elk, or anything else—they always welcomed its spirit into their village and thanked it for helping them. People felt a direct connection to other living things, and they expressed this connection through their religion.

ACTIVITY PAGE **9.1**

NAME: _____

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Pronoun Reference

Directions: Circle the pronouns in the sentences below. Write the noun(s) on the line provided.

1. Raven followed the old man's daughter when she went out searching for food. She searched in the darkness and found a blackberry bush.

   Noun: _____

2. Clever Raven turned himself into a blackberry, and she picked him and ate him. Then Raven was in her belly, and he became her child.

   Noun: _____ and _____

3. Months later, Raven was born. The old man did not like having a baby in the house. To make matters worse, Raven grew very quickly, and soon he was a curious, energetic boy.

   Noun: _____

4. He asked questions about everything, and he always wanted the old man to tell him stories, sing songs, and play games. The old man did not like to do any of these things, but Raven asked him every day, anyway.

   Noun: _____ and _____

Plan a Persuasive Paragraph

Directions: Do you think property ownership is good for the environment? Plan a persuasive paragraph arguing for or against the right to own property. Use the graphic organizer to plan your persuasive paragraph.

Claim:
Anticipated counterargument:
Statement that weakens the counterargument:

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Three statements supporting claim:

1)

2)

3)

Concluding sentence:

Write a Persuasive Paragraph

Directions: Do you think property ownership is good for the environment? Write a persuasive paragraph arguing for or against the right to own property.

_____

(Title)

NAME: _____

DATE: _____

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Persuasive Paragraph Rubric

	Extending	Mastering	Developing	Beginning
Organization	The topic sentence is inviting, states the claim, and provides an overview of the issue. Information is presented in a logical order and maintains the interest of the audience. The conclusion strongly states a personal opinion.	The topic sentence includes the claim and provides an overview of the issue. Information is presented in a logical order with some effort to maintain audience interest. A conclusion states a personal opinion.	The topic sentence includes the claim. Most information is presented in a logical order. A conclusion is included.	There is no clear introduction, structure, or conclusion.
Claim	A claim is made that strongly and clearly states a personal opinion and identifies the issue.	A claim is made that states a personal opinion and identifies the issue.	A claim is stated.	An attempt is made to state a claim.

NAME: _____

DATE: _____

LANGUAGE STUDIO 8: NATIVE AMERICANS

	Extending	Mastering	Developing	Beginning
Three Statements of Support	Three or more distinct and strong reasons are stated with good support.	Three distinct reasons are stated.	Two distinct reasons are stated.	An attempt is made to support a claim.
Counter-argument	Counterargument demonstrates a clear understanding of the potential audience and effectively anticipates counterarguments.	Counterargument demonstrates a clear understanding of the potential audience.	Counterargument demonstrates some understanding of the potential audience.	Counterargument attempts to target an audience.
Language and Conventions	Demonstrates bridging use of transitional words and phrases.	Demonstrates expanding use of transitional words and phrases.	Demonstrates emerging use of transitional words and phrases.	An attempt is made to use transitional words and phrases.

The Taking of the Land

By the late 1880s, nearly all Native Americans had been forced onto reservations or assimilated into US society. Forcing people onto reservations did not bring peace. Even on the reservations, far away from their ancestral lands, stripped of their culture and forced to learn a new way of life, some Native Americans would not give up the fight.

Eventually, Congress passed the Dawes Act (officially the General Allotment Act of 1887). The Dawes Act was the final act that forced an end to the conflict between the United States and Native American tribes. This act "did away with" reservations altogether,

based on the belief that the only path to survival for Native Americans was for them to assimilate and own land as individual family farmers. It did not simply take more land or carve up existing reservations, the Dawes Act actually aimed to destroy the heart of Native American cultural identity, the one thing no other treaty or act of Congress had done.

Under the Dawes Act, reservations were broken up, and Native American families who lived on those former reservations received 160 acres of land, the same amount granted to settlers, or homesteaders, by the Homestead Act. This act forced Native Americans to work and survive as individuals and not as part of a tribe. However, most of the acreage that was allocated was on existing reservation land that was usually unsuitable for growing crops. While most homesteaders had a good chance of making a living off their 160 acres, most Native Americans had no such luck on their dry, dusty allotments. Any land not claimed by Native Americans was made available for sale to non–Native American settlers. Those who could not earn a living from their allotment had to sell their land to non–Native American settlers for needed cash. The former reservation homelands were chopped up into many little pieces, and hunting and fishing territory was lost. Many people left the former reservation land and never returned. Those who remained struggled to survive. Worst of all, rather than a sense of belonging to the land, they felt a sense of isolation and sadness. The people were scattered, and all that remained—it seemed—were stories and memories.

To understand why the Dawes Act was so damaging to Native American tribes, you must understand what lay at the heart of Native American cultural identity. Many factors contribute to cultural identity. Language, clothing, food, and religious practices are all important, but they are really only pieces of the puzzle. These things only provide clues to a person's culture. The true core of a person's cultural identity cannot necessarily be seen, heard, or tasted. Cultural identity is something people feel and know deep down inside, regardless of what they wear or do and regardless of where they live.

When Native American children went off to the boarding schools (such as the Carlisle Indian Industrial School), they changed their clothing and language. They traded

in their homemade animal-skin clothes for wool suits and dresses. They learned to speak English. They learned about a new religion, and they learned how to work in factories and on farms. They did everything their teachers told them to do—everything that was supposed to erase their cultural identity. But it did not work. In the end, they were still Native Americans.

Why? What was it about the cultural identity of Native Americans that could not be easily erased or forgotten? The answer to this question is both simple and complicated: land. It is simple because it is easy to see why the land was so important to Native Americans. It is complicated because, according to Native American traditions, there is more to land than dirt and rock. There is more to it than plants, animals, and all the resources necessary for survival. Land is not simply a place where a tribe lives. Land is part of the tribe itself. Land is the thing that makes the tribe whole.

Anyone can learn to hunt, but how many people know how to make a perfect bow and arrows using only materials available on the grassy prairies? How many people can look at the forest floor and immediately know what kinds of animals have walked through the area in the past few days, how big they were, and in which direction they were headed? How many can predict the weather by watching birds or observing the moon? How many people do you know who can find enough food in the desert to feed an entire extended family of 50 or more people? To not only survive but also to raise a family and live comfortably in the forest, plains, or desert requires great skill and knowledge, more than a single person could teach himself or herself. Living such a lifestyle brings people into direct and intimate contact with nature, with the land itself, as well as with the sky and waters and with other people with whom they must work and share in order to live.

This was very different from the way people of European descent lived at the time, and it is very different from the way Americans and Europeans live today. Rather than conquering or taming the land, Native Americans blended into the land. They built sturdy, cozy houses. They moved across the land, following age-old trails. They had excellent tools, but not machinery or factories. They possessed incredible amounts of knowledge—knowledge not necessarily found in a library.

For people living today, survival in the forest or other wilderness would require all our energy and time. How much spare time would you have for fun and games if you found yourself in the wild, with nothing but your hands and brain to provide food, clothing, housing, and fuel? Most likely, you would spend all day looking for food and still go to bed hungry, and probably cold, too. Not so for Native Americans. Native Americans lived comfortably and usually had plenty to eat. They had time for things other than hunting and gathering. They made music and danced and told long, engaging stories. They had celebrations and feasts, and they played games. They were skilled artisans, crafting boats, fine pottery, basketry, jewelry, dolls, headdresses, baby cradles, and all sorts of beautiful objects using whatever was available on the land. This was true long ago, and it is still true today.

From this closeness and intimacy with nature, Native Americans developed their truest sense of cultural identity. Their knowledge of the land was the source not only of food and shelter but also of their stories and beliefs. The spirits they worshipped lived on the same land as everything else. Furthermore, wherever they went, Native Americans walked in the footsteps of their ancestors, whose very flesh and blood was also part of the land. For Native Americans, *everything* was connected to the land. As long as a tribe was together on the land, they were able to cling to their cultural identity. Without land, there could be no tribe.

And so, after decades of wars, treaties, and acts of Congress, the US government finally understood that any land Native Americans were permitted to own as a tribe allowed them to maintain their cultural identity. This is where the Dawes Act

finally succeeded where other acts and treaties had failed. It destroyed the sense of connection between the tribes and the land. In the process, it almost defeated the tribes themselves.

Before the Dawes Act of 1887, there were nearly 150 million acres of land in Native American hands. By 1934, when the Dawes Act was finally overturned, Native Americans owned only 48 million acres. In other words, as a whole, Native Americans had lost over two-thirds of their land. Fortunately, though, with the overturning of the Dawes Act and the Indian New Deal of 1934, Native American tribes were allowed to own land once again. Furthermore, they were allowed to exist as separate nations within the United States. Today, the total land owned by Native American tribes has risen slightly, to about 55 million acres. That is only about 2 percent of the total land in the United States, but it was enough for Native American tribes to revive and renew the core of their cultural identities—the connection to the land on which the tribe depends. That revival continues to this day, nearly 100 years later.

Language Studio 9

Chemical Matter

Think Bags

Directions: Read each statement and write your answer on the line provided.

1. Identify each of the items in the bag and list them here **(visualize)**:

_____

_____

2. Predict how the items might be connected to one another and write it here **(predict and synthesize)**:

_____

3. Choose one item and tell your group a story about something the item reminds you of **(make connections)**.

_____

_____

_____

4. Using the items in the bag, brainstorm a list of five important words that you might find while reading. When your teacher reads the story aloud, if you hear one of those words, join in and read the word along with your teacher.

_____

_____

_____

NAME: _____

DATE: _____

LANGUAGE STUDIO

LANGUAGE STUDIO 9: CHEMICAL MATTER

Excerpt from Chapter 1: Welcome to Fossil Camp!

"It's got to be over a hundred degrees out there," Amy muttered, staring through the windshield of the pickup. The badlands of eastern Montana **shimmered** in the heat under a pale, cloudless sky. **Barren** ridges of weathered rock towered above dry gullies and patches of stiff prairie grass. Amy aimed the air conditioner vent so it blew directly on her face. "I really don't like being hot."

"I'm afraid it's even hotter out at the fossil site," said Tess, swerving to avoid a pothole in the narrow dirt track. "Lately it's been over ninety degrees in the shade."

"*Great!*" thought Amy. She fanned herself with a paperback book. It was her favorite kind of book: a mystery featuring a clever detective. She had read most of it on the flight from Chicago and then finished it while she and Matt waited for Tess to pick them up at the small airport in Billings, Montana.

Amy glanced back at her twin brother. He was **sandwiched** between their two backpacks in the back seat, with a big grin on his freckled face. Last month, when Matt had learned about Fossil Camp, he'd burst into her room, waving the camp brochure. "We can actually dig for dinosaur fossils," he'd whooped. Amy had planned to spend her summer vacation at home, reading mysteries out on the breezy screened porch and drinking tall glasses of icy lemonade. But Matt had talked their parents into Fossil Camp—and Amy into coming with him. Now, sweltering in the heat, she was having second thoughts.

"What's Dr. Forester like?" Amy asked. She'd read in the brochure that Dr. Pam Forester was the paleontologist in charge of Fossil Camp.

"She's amazing," Tess replied, "and a world expert on Cretaceous dinosaurs."

"Like *Tyrannosaurus*?" Matt asked.

"Like *Tyrannosaurus*," Tess said, smiling at him in the rearview mirror.

"I hope we make an important **discovery**," Matt said, digging his water bottle out of his pack.

"Anything's possible," Tess said. "These dry badlands are among the best places in North America to look for fossils, especially dinosaur bones." She swerved again but failed to avoid a deep rut, and the pickup **lurched** hard to one side. "Sorry about the bumps," she said, "but the road washes out a little bit more every time it rains."

"Who are the other campers?" Amy asked.

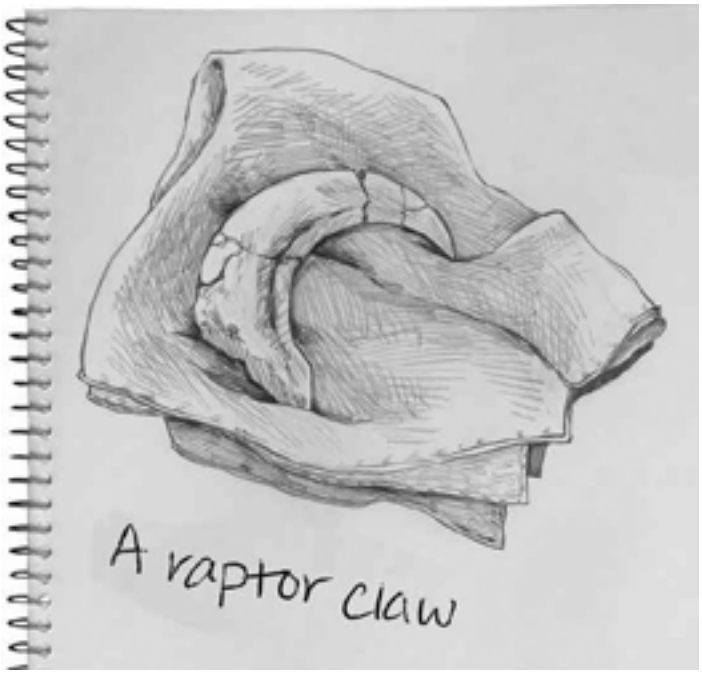
"There are two other girls and two other boys," Tess replied. "Daria and Julian are your age. Felix and Kristal just finished sixth grade, so they're a year ahead of you in school."

Amy hoped the other kids would be nice, because together with Dr. Forester and Tess, they were all going to be camped out in this desolate landscape for ten days. She glanced back at her brother again. Matt made new friends easily and he also didn't mind heat. Or dirt. Or bugs. Or. . . . Amy sat up suddenly as a new thought occurred to her. "Are there snakes out here?"

Tess nodded but kept her eyes on the track. "Plenty. But we rarely see them during the day because it's so hot and they stay curled up in holes or under rock ledges."

"*Double great!*" Amy thought, swallowing hard. Snakes made her sweat as much as hot weather. And what did Tess mean about not seeing snakes "during the day"? Did they

come out at night? She was about to ask when they crested a low rise and Tess suddenly pointed.



"There's our camp!"

A cluster of tents stood in the shadow of a high, barren ridge. A slender woman with a deep tan waved as they pulled in. When they stopped, she strode over to the pickup, followed by four kids.

"Welcome to Fossil Camp, Amy and Matt! I'm Dr. Forester, and these are your fellow campers." She quickly made the introductions. Felix was tall and very thin, with bony knees and elbows. Julian was about Matt's height, with close-cropped hair and a friendly grin. Daria was average height with short, dark hair and watchful eyes that seemed to take in everything at a glance. Kristal was taller than Daria. Her blonde hair was swept to one side in a ponytail, and she wore big dark glasses.

"Why don't you all help Amy and Matt get settled?" Dr. Forester suggested. "Then we'll have orientation in our field laboratory. That's the big canvas tent with the awning out front."

A wave of hot, dry air hit Amy as she stepped into the tent she was going to share with Kristal and Daria. "It's unbearable in here," she choked. "How are we supposed to sleep?"

"Dr. Forester says it gets a lot cooler at night," Daria said.

There were three cots inside, each with a sleeping bag and pillow. Kristal took off her sunglasses and used them to point at the cots, one by one. "I'm here and Daria's there, which leaves you in the bed by the door. Sorry."

LANGUAGE STUDIO 9: CHEMICAL MATTER

Amy thought sleeping close to the tent flap might be the coolest spot at night, so she didn't mind not having a choice. She dropped her backpack onto her cot.

"Did you bring your phone?" Daria asked.

Amy nodded. "But I haven't gotten a signal since we left Billings."

Daria sighed and looked disappointed. "I thought maybe it was just my phone. I've never been anywhere I couldn't make a call. It's like being in the middle of nowhere."

NAME: _____

DATE: _____

LANGUAGE STUDIO 9: CHEMICAL MATTER

Vocab-O-Gram

Directions: All of the words in the boxes below are connected to the story you began reading. Decide if the words are connected to characters, setting, plot, or conflict, then write the words under the appropriate categories.

Heat	Mystery	Badlands	Dr. Forester
Fossil	Twins' Discovery	Dinosaurs	Camper

Characters: Which words tell you about the characters in the story?	**Setting:** Which words tell you when and where the story took place?	**Plot:** Which words tell you what is happening in the story?	**Conflict:** Which words describe the problem in the story?
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Write a 2–3 sentence **summary** of the pages you have read using the words above.

_____

_____

_____

_____

_____

_____

Excerpt from Chapter 1: Welcome to Fossil Camp!

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"There's our camp!"

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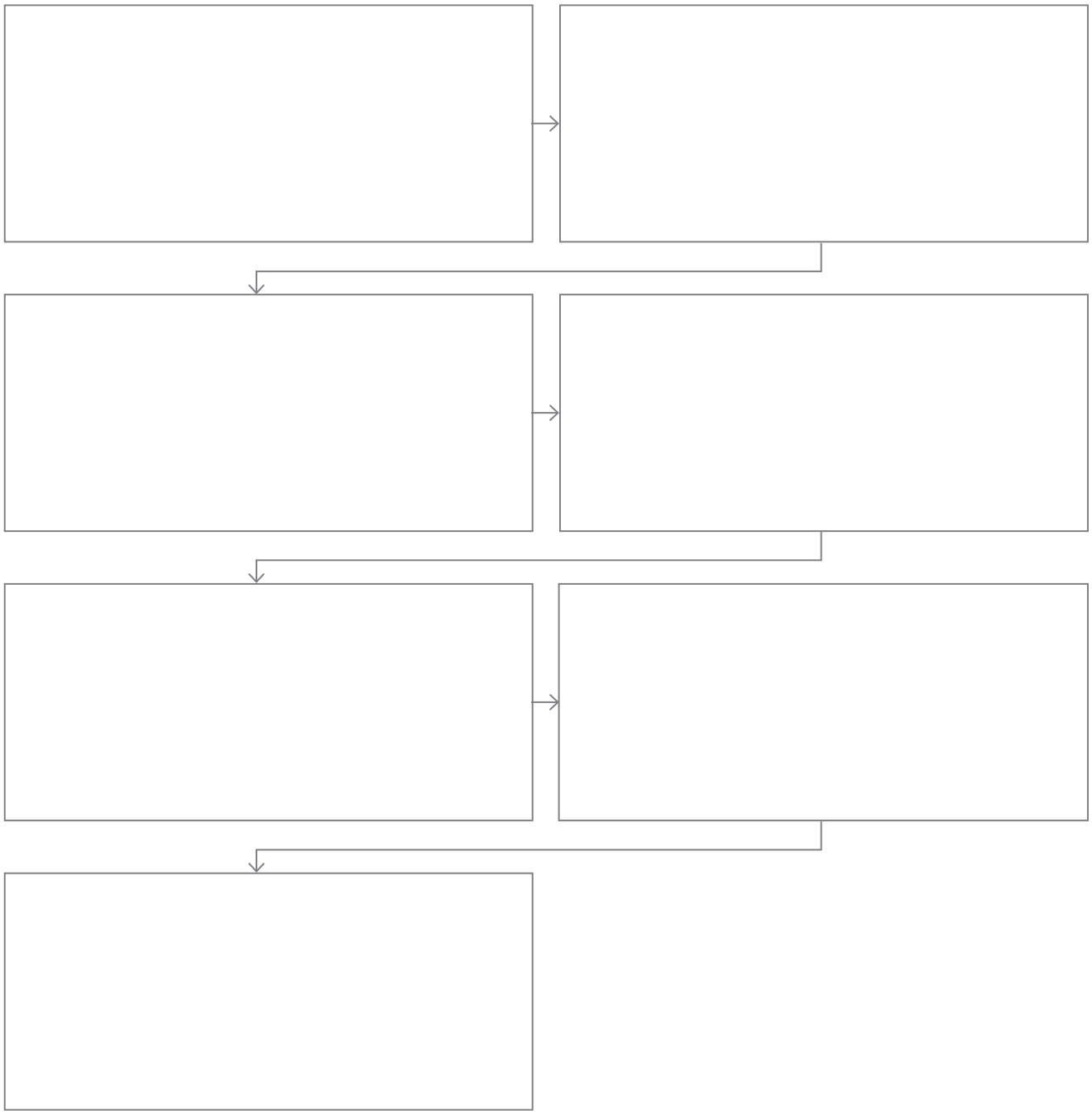
"Dr. Forester says it gets a lot cooler at night," Daria said.

Chapter 1 Graphic Organizer

Directions: Use this graphic organizer to organize the events from the excerpt from Chapter 1, "Welcome to Fossil Camp."



ACTIVITY PAGE **2.3**

NAME: _____

DATE: _____

LANGUAGE STUDIO

LANGUAGE STUDIO 9: CHEMICAL MATTER

Four Sentence Summary Using Time Connectors

Summarize the information from your graphic organizer in Activity Page 2.2 to finish the sentences below.

At the beginning,	_____ _____ _____
After that,	_____ _____ _____
Then,	_____ _____ _____
Finally,	_____ _____ _____

Excerpt from Chapter 2: A Bed of Bones

"So if ice, water, and water vapor are all the same kind of matter, what explains the different states?" Matt asked.

"Excellent question, Matt," Tess replied. "All matter is made up of small particles, so small that they can't be seen with the naked eye. Whether a type of matter is in a solid, liquid, or gas state depends on how tightly packed these particles are, and how much energy they have. In a solid, such as an ice cube, the particles are crammed together. They can wiggle, but they don't have enough energy to do much more than that. A solid keeps its shape because its particles are in such fixed positions."

Tess took a sip of water from her bottle. "Matter in liquid form, like the water in this bottle, has particles that are farther apart than those in a solid. They have more energy, too; enough so they move freely, and slip and slide past each other. That's why liquids flow. Matter in liquid state doesn't have a fixed shape. It takes the shape of whatever space it occupies." She held up her bottle and tipped it from side to side.

"Matter in gas form," Tess continued, "is made up of particles that are farther apart than those in a liquid and much further apart than particles in a solid. And they have more energy, too. There is so much space between gas particles that they move very freely and rapidly in different directions. A gas spreads out to fill whatever space is available." Tess spread her arms wide. "And here in Montana, we have lots of space!"

ACTIVITY PAGE **3.2**

NAME: _____

DATE: _____

LANGUAGE STUDIO 9: CHEMICAL MATTER

Comparing and Contrasting Information in Text

Directions: Use the connector words below to write a few sentences that compare and contrast the different states of matter.

- similarly
- however
- in contrast

Excerpt from Chapter 3: A Fossil Goes Missing

"Dr. Forester doesn't look very happy this morning," said Felix as he poured milk on his instant oatmeal and passed the carton to Amy. She followed Felix's gaze. Dr. Forester was standing outside the lab with Tess, gesturing and shaking her head.

Matt **slathered** butter on a piece of toast. Julian had made himself a peanut butter sandwich, and Daria was munching an apple. The only one who wasn't eating was Kristal. Wearing her dark glasses, she silently sipped a cup of hot tea. Before breakfast, Kristal had been sitting on her cot, working on a sketch. When Amy had asked to see what she'd drawn, Kristal had pulled her sketchbook tight to her chest. Amy had wondered why Kristal would be so secretive about her drawings.

Dr. Forester finally came over, poured herself a mug of coffee, and joined them at the table. "One of the little fossils from the gully seems to be missing." She lifted the cup but set it down again without taking a swallow. "I could have sworn there were six fossils, but this morning there were just five on the table in the lab."

"Did you search the tent?" Julian asked. Dr. Forester nodded. "And now Tess is searching again. The thing is, I could be mistaken about the number of fossils. There might have just been five to start with. Still, it's a bit of a mystery."

At the word *mystery*, Amy started to tingle all over. A missing fossil? Now *that* was something she could get interested in! Amy thought about Inspector Ellis and his notepad. She suddenly remembered she'd tucked a small notebook inside the front pocket of her backpack just before she and Matt had left home. It would be perfect for recording any clues she might uncover regarding the missing fossil.

"Excuse me," she said, pushing her chair away from the table. "I need to get something from the tent, but I'll be right back."

Amy sprinted to the tent and retrieved the notebook from her backpack along with a mechanical pencil. As she turned to leave, she spotted Kristal's sketchbook lying on her cot. Before Amy realized what she was doing, she opened the sketchbook and quickly flipped through the pages until she came to one full of detailed drawings of the little fossils from the gully. There were drawings of six different fossils, not five. So there *was* a fossil missing! Amy put Kristal's sketchbook back where she had found it, and hurried back to join the others.

On the drive out to the dig site, Amy clutched her notebook, lost in thought. How had the fossil gone missing? Had someone taken it? And why hadn't Kristal mentioned her drawings to Dr. Forester?

"You look better today, Sis," Matt said, interrupting the stream of questions running through Amy's head. "Yesterday you seemed pretty unhappy."

Amy smiled at her brother. "*Today is different,*" she thought. "*Today there's a mystery to be solved.*"

Writing a Summary

Directions: In the lines provided, write a summary statement of the paragraphs below, taken from Chapter 3.

Dr. Forester finally came over, poured herself a mug of coffee, and joined them at the table. "One of the little fossils from the gully seems to be missing." She lifted the cup but set it down again without taking a swallow. "I could have sworn there were six fossils, but this morning there were just five on the table in the lab."

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NAME: _____

DATE: _____

LANGUAGE STUDIO

LANGUAGE STUDIO 9: CHEMICAL MATTER

Excerpt from Chapter 3: A Fossil Goes Missing

When they arrived at the dig site, Dr. Forester suggested they spend the morning continuing their excavations. After lunch, when the afternoon sun was turning the narrow plateau into a **furnace**, they'd scour the gully. "Maybe we'll be lucky and find more small fossil bones," she explained.

Amy noticed that this plan seemed to please everyone, especially Julian. He pulled out his pick and brush and set to work before anyone else. After a while, he paused and looked over at Tess. "Yesterday you were talking about how matter can change states. But what makes one kind of matter different from another? What makes this pick different from, say, the rock or the fossil bones?"

Tess rocked back on her heels, wiping the sweat from her brow. "Before I can explain that, we need to fill in a few background details. Remember when I said that matter was made up of small particles? Those particles are called atoms, which are so small they are invisible to the naked eye. There are more than a hundred different kinds of atoms, and each kind is called an element."

"But aren't **atoms** composed of even smaller particles called protons, neutrons, and electrons?" Daria asked.

"Indeed they are," Tess agreed, "but an atom is the smallest amount of any element that still has the properties of that element. Elements, then, are the basic substances that make up all matter—think of them as the basic ingredients of matter. All the known elements are arranged on something called the **Periodic Table** of the Elements."

"We have one of those hanging on the wall of our science classroom this year," Kristal said.

"Excellent!" exclaimed Tess. "Then you may have noticed that each element has a name and a symbol made up of one or two letters. For example, oxygen is an element and its symbol is O. The element nitrogen's symbol is N, and the element aluminum's symbol is Al. The elements are arranged on the Periodic Table based on their properties and certain patterns in their atoms." Tess grabbed her rock hammer and held it up. "And that brings me back to your question, Julian. The elements are often divided into two basic groups: metals and nonmetals. The head of this hammer is mostly made up of the element iron." She flipped the hammer upside down. "The wooden handle is made up mostly of nonmetal elements, such as carbon, nitrogen, sulfur, and phosphorus."

Felix suddenly pulled out all his digging tools and arranged them in a line on the ground. "Ever notice how metal objects make a nice sound?" he asked with a mischievous look on his face. He began tapping his chisel against all the other metal objects, like he was playing the drums. Each one gave out a clang when he struck it.

"If paleontology doesn't work out for you, Felix, you might have a future as a musician," Matt joked. "Then again, maybe not."

Felix made a face at him.

"Felix is right, though," Tess broke in. "That ringing sound—scientists call it **resonance**—is a property of metals. Being shiny is another. So is being malleable and ductile, which means that you can hammer metals into shapes and stretch them out into long, thin wires. And, if you've ever seen the inside of electrical cord, you've probably noticed the metal wires inside. Another property of metals is that they are good **conductors** of electricity and heat."

Tess picked up a piece of sandstone and set it out on a flat space beside her. "Nonmetals, on the other hand, have very different properties. They tend to break or crumble, not bend." She hit the rock with her hammer and it shattered into pieces. "They also don't conduct electricity, they are usually dull rather than shiny, and they lack that lovely resonance." She tapped her hammer on her water bottle and it made a dull *thunk*.

Amy noticed that Dr. Forester had been listening to Tess, but she'd suddenly walked over to the far end of the plateau. Now she was returning— in a hurry.

"Change in plans, everybody," she said, breathlessly. "There's a storm coming." She turned and pointed toward the northwest, where a line of dark clouds hugged the **horizon**. Even as Amy watched, the clouds seemed to expand and move closer.

"I'm afraid it's moving directly toward us," Dr. Forester said, untying the lines that held the tarp over the dig site. "And when it hits, we don't want to be standing up here, exposed on this plateau."

Excerpt from Chapter 3: A Fossil Goes Missing

"Why is that a problem?" Kristal asked.

Tess summed it up in one word. "Lightning."

Kristal's eyes grew wide. "So we're going to back camp, where we'll be safe in the tents?"

"Weren't you listening to the chemistry lesson?" Felix called out as he ran over to help Dr. Forester with the tarp. "The tents have metal poles, and metals conduct electricity."

"At home we go into the basement when a bad storm is coming," Daria said in a tense voice.

"And in a way," said Dr. Forester, stuffing the folded tarp into her backpack, "that's exactly what we are going to do. Everyone, grab your gear and follow me." She led them to the spot where Felix had slid down into the gully. The wind was blowing much harder, and the storm now covered half the sky like a huge, black curtain sweeping toward them.

"Yesterday when I was walking along the gully, I spotted a shallow cave near the end of this ridge." Dr. Forester had to shout to be heard above the rising wind. "Climb down carefully; it's slippery."

"You can say that again!" yelled Felix.

Amy kept her eye on the storm as they hurried along the dry gully. Bright chains of lightning zigzagged through the steely gray clouds that were quickly approaching, and she could hear the deep rumble of thunder.

By the time they reached the cave, the storm had blotted out the sun. They scrambled up the rocky hillside and stepped beneath the cave's sheltering overhang just as the first raindrops began to fall.

"Move to the back," Dr. Forester shouted above the booming thunder. They huddled together in the deepest corner as the storm struck. Rain fell in great, swirling sheets. Bolts of lightning flashed and thunder crashed so loudly that Amy had to cover her ears.

Gradually, the rain began to let up. The rumble of thunder grew more and more distant as the storm slowly moved off. Dr. Forester stepped to the front of the cave and the others followed.

"Everything looks so much more colorful," Kristal said, as the sun came out,"like the rain washed it clean."

"It might have done a lot more than that," Dr. Forester mused. "Rain erodes these rocky ridges and loosens fossils hidden inside them. Sometimes," she paused and looked thoughtfully at the gully below, "it washes fossils down off the ridges into low spots."

Felix was the first to understand. "You mean—we might find more of those strange little fossil bones in the gully below the dig site?"

Dr. Forester gave a quick nod. "Exactly! So, if you all don't mind getting your boots a little muddy, let's go on a fossil hunt!"

LANGUAGE STUDIO 9: CHEMICAL MATTER

Numbered Heads Together

Directions: After reading Activity Page 5.2, write three important Right There Questions and two important Higher Level Questions.

Right There Questions (answers can be found directly in the text):

1. _____

2. _____

3. _____

Higher Level Questions (the reader needs to put together the ideas in the text to find an answer):

1. _____

2. _____

3. _____

Use the space below to record your team's response to questions of other teams:

1. _____

2. _____

3. _____

NAME: _____

DATE: _____

LANGUAGE STUDIO

LANGUAGE STUDIO 9: CHEMICAL MATTER

Excerpt from Chapter 4, "Who's Hiding What?"

"Let's all spread out," Dr. Forester suggested as they reached the stretch of the gully below the dig site. "Keep your eyes peeled for anything that looks like the small fossil bones we found yesterday."

Everyone fanned out across the width of the gully, and with heads bowed, began scanning the rocky ground. Daria picked up something, frowned, and dropped it again. Then she **prodded** the rocky soil with the tip of her finger. "Wow, everything is sure drying out quickly," she said. "What happened to all that rainwater?"

"Some of it soaked into the ground," Tess replied. "But some of it evaporated and changed to water vapor that has mixed with the air. Remember, though, that physical changes are reversible. High above the earth's surface, the air is much colder. When water vapor encounters cold air, it loses heat and **condenses**. It changes states from a gas back to a liquid, forming tiny droplets of liquid water. Those tiny droplets in the air form clouds. If the droplets are big enough, they'll fall back to earth as rain."

"You mean we might get another thunderstorm?" Kristal eyed the sky warily.

"It's possible, but I'm guessing it won't rain again for quite a while," Tess replied. "I think the excitement is over for today."

Just then, Julian let out a shout. "Don't be so sure, because I just found gold! **Eureka**!"

Everyone rushed over to see the gleaming, dark, yellow rock that Julian held in the palm of his hand.

LANGUAGE STUDIO 9: CHEMICAL MATTER

"I'm not only going to be famous," Julian said, triumphantly, "I'm going to be rich. Just look at the size of that nugget. My dad is going to be so proud of me!"

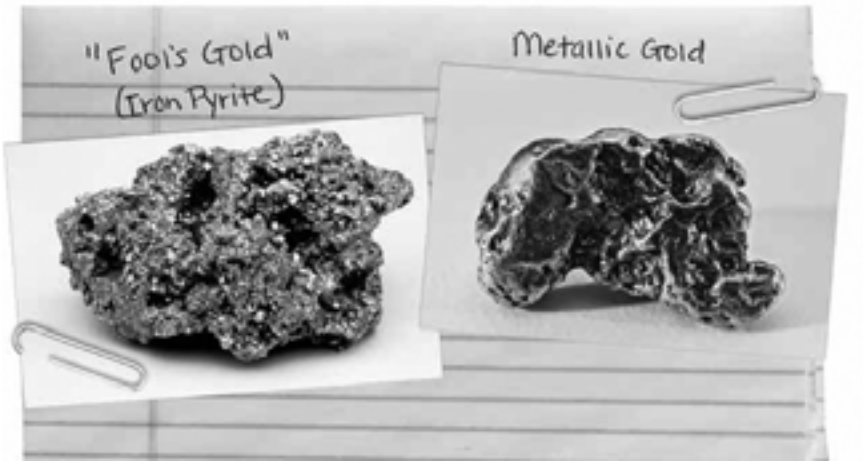
Dr. Forester examined Julian's find carefully. "Sorry to disappoint you, Julian. I'm afraid what you have there isn't gold but a very common type of rock called iron pyrite."

Julian's face fell. "You're absolutely sure?"

Tess laid a comforting hand on his shoulder. "You're not the first person to make that mistake, Julian. In fact, iron pyrite is often called fool's gold for that very reason."

Amy could tell Julian was very disappointed that his great discovery turned out to be nothing. He didn't say anything as he took the rock back from Tess and shoved it deep into his pocket.

A few minutes later, Matt stopped and nudged something with the toe of his shoe. "Hey, what about these?" Everyone rushed over and watched as Dr. Forester knelt down and then picked three more fossils out of the gravel.



"Maybe these will help me figure out just what kind of animal we have," she said excitedly.

"Can we get back to the dig site now?" Julian blurted out in a loud, impatient voice. It was clear he didn't want to look for small fossils anymore.

"It is almost noon," Tess acknowledged, "so let's break for lunch."

They climbed up the slope to the dig site and retreated to the far end of the plateau again to eat sandwiches and fruit. Amy made a point of sitting next to Kristal. She unwrapped her sandwich but then laid it aside as she leaned in to ask the question she'd wanted to ask all morning. "Why haven't you shown Dr. Forester your drawings of the little fossils yet?" Amy whispered. "If you did, she'd know there really is one missing."

Kristal's eyes went wide with surprise. "How did you know about my drawings?"

"I admit I peeked at your sketchbook," Amy confessed, "but you can't keep this information quiet. You need to let Dr. Forester know."

Kristal was silent for a while. "Okay, I promise I will, but only—only if there is no one else around. Otherwise, people will make fun of my drawings."

"No, they won't!" Amy gasped. "You draw really well."

Kristal suddenly looked past Amy with a surprised look on her face. "Hey, your sandwich!"

Amy turned just in time to see a small animal with narrow stripes making off with part of her sandwich. "You little stinker," she said, laughing as the animal disappeared into a crack in the rocks far above them.

"Those little ground squirrels are all over these badlands," said Tess, chuckling. "They are very good at stealing food. I've known them to make off with other small objects they think might be food, too."

After lunch, they returned to excavating Achy-Breaky's bones. Matt had already exposed three of the dinosaur's fossil teeth. Amy was making much slower progress because her mind kept wandering back to the missing fossil bone.

"We're never going to get this jawbone excavated if you keep staring off into space," Matt said quietly, glancing up at his sister.

"I know, I know," Amy said, hurriedly picking up her brush to sweep away the bits of rock dust she'd created. "But I can't stop thinking about that missing bone." She told him about Kristal's drawings.

"Maybe Dr. Forester simply mislaid it," Matt suggested, "like Dad does with his car keys all the time. There's no evidence someone took it, and why would they?"

Amy had to admit that Matt's question was a good one. She glanced around at the group. Everyone was hard at work—except Felix, who just at that moment took something out of his pocket and popped it into his mouth! Felix noticed Amy staring and swallowed hard, gulping down whatever it was. He cleared his throat and suddenly turned to Tess. "I was wondering, Tess, just what is the difference between gold and fool's gold?"

Amy thought Felix just asked the question to turn her attention away from him.

Tess didn't notice, though, and was happy to answer it. "Remember that atoms are the smallest particles of matter. The thing is, you don't find many atoms all by themselves in nature. Atoms typically join together, or **bond** into groups of two or more to form

molecules. Some molecules are made up of atoms of just a single element. A lump of gold, for example, would be made up of many gold atoms bonded together.

"Most molecules, though, are combinations of two or more different elements. A molecule of iron pyrite, for example, has two atoms of the element sulfur bonded to an atom of the element iron. Molecules that contain atoms of two or more different elements are called compounds. Water is another example of a compound. A water molecule is made up of two atoms of the element hydrogen and one atom of the element oxygen."

"Is that why people sometimes call water *H-two-O*?" Daria asked.

"**Precisely**," Tess replied. "There are millions of molecules that are compounds, and you can find them everywhere and in everything. This sandstone rock we're scratching away is made of molecules that are compounds. So are these dinosaur fossils, and the tools we're using. Each one of you is a walking, talking collection of different compounds that make up your bones, muscles, nerves, and everything else in your bodies."

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6.2 ACTIVITY PAGE

LANGUAGE STUDIO 9: CHEMICAL MATTER

Exploring Greek and Latin Roots

Directions: Use context clues from Chapter 4 to fill in the missing information in the chart below.

Root	Origin	Meaning	English Word
con–	Latin	with, together	
	Latin	from, out	excitement
typ–	Greek		typically
hydr–	Greek	water	
	Latin	for, forward	progress

Word Search
Some other Greek and Latin root words I found are . . .

ACTIVITY PAGE **7.1**

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LANGUAGE STUDIO

LANGUAGE STUDIO 9: CHEMICAL MATTER

Excerpt from Chapter 5, "Sketches and Secrets"

It was day three of their paleontology adventure. Felix and Daria had removed nearly all the rock from around the cluster of backbones. Kristal and Julian were making good progress on excavating the bones of the dinosaur's foot. Amy could see that Matt would have the rock cleared away from his half of the jawbone by the end of the day. If she didn't work faster on her half, she'd be holding things up. Amy tried to put the mystery of the missing fossil out of her mind and concentrate on scraping and sweeping the crumbly rock away.

As more and more of the dark, gleaming fossil was revealed, Amy remembered something Tess had said when they first arrived at Fossil Camp.

"Tess, remember when I asked you what a fossil was?"

"Ah, yes, so you did." Tess said, straightening up. "Now that you all understand a little chemistry, I'll give you a more complete answer."

Everyone put down their tools and stretched, happy for a break.

"Different kinds of fossils form in different ways," Tess began, "but these dinosaur fossils formed as the original compounds in Achy-Breaky's bones were replaced by other compounds, thanks to the powerful effects of a solution at work."

"Like sugar in tea?" Kristal asked.

"In a way," Tess replied. "When Achy-Breaky died millions of years ago, his body was quickly covered beneath a thick layer of muddy sand. As a result, it didn't break down, or decompose, in the way most dead things usually do. It was preserved for a long time, sealed beneath tons of sand that gradually turned to rock."

"As time passed, water oozed down through the rock and picked up different mineral compounds along the way. These compounds dissolved in the water, creating a solution. As more and more minerals dissolved in the water, they began to come out of the solution as solids again. Little by little, those mineral compounds settled in tiny spaces in Achy's bones and teeth. They replaced his original compounds so that what was left at the end of this process were fossilized bones and teeth. And that's what you are excavating right now."

"You sure were right, Tess," said Felix, "when you said that chemistry has a lot to do with paleontology."

Amy went back to work thinking about the fossils in the rock beneath her hands in a very different way. They weren't just old bones, but the result of amazing changes in matter that had taken place over an incredibly long period of time. They were pieces of ancient history, very real clues to the past.Thinking about fossils in this new way made Amy glad she'd let Matt talk her into coming to Fossil Camp. Even if she didn't solve the mystery of the missing fossil, she was glad they were here.

Hours later, they returned to camp, hot, sweaty, and tired. Tess warmed a big pot of water and set out a basin and towels. "Does anyone want to clean up before dinner?" she called out.

Amy was first in line. Tess poured some warm water into the basin and handed her a bar of soap. As she washed her face and arms, the water in the basin turned cloudy and light brown—the same color as the sandstone ridges. There was a layer of sandy grit at the

bottom of the basin. "Wow, was I ever dirty," she said, patting her skin dry with the towel. Amy picked up the basin to toss away the dirty water and exclaimed, "I created a mixture, didn't I?" Tess nodded and laughed as she rinsed and refilled the basin for the next person in line.

After dinner, everyone gathered in the lab. Dr. Forester had laid out all eight of the fossil bones from the gully on a piece of cloth on the big table. "Tonight I want to show you how paleontologists help preserve fossils that are rather fragile, as these tiny bone fragments are." She held up a small brown glass bottle. "This is a special solution, a sort of glue called a consolidant, that we paint onto delicate fossils. Let me show you how it's done." A brush was built into the bottle's lid, and Dr. Forester used it to carefully apply a thin coat of consolidant onto each of the fossils. She explained that the consolidant soaked deep into the fossils, and as it dried and hardened, it would make them stronger and less likely to break.

"These will be dry by morning. Then I'll go back to work analyzing them. If I could just find a matching edge for even just two of them, I might have a large enough piece to say for sure what type of dinosaur this is." She sighed and screwed the lid back on the bottle. "We'll just have to wait and see."

Changing Nouns to Verbs

Directions: Change the nouns to verbs and then write a sentence with the new verb.

Nouns	Verbs	Sentences
excavation	excavate	Kristal and Julian excavated the dinosaur's foot bone.
compound		
fossils		
crumble		
cluster		

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LANGUAGE STUDIO 9: CHEMICAL MATTER

Excerpt from Chapter 6, "The Quest for Clues"

Tess continued, pulling on a pair of thin, latex gloves. "I'm going to demonstrate how paleontologists make a plaster jacket. It's a little like a doctor putting a plaster cast on someone's broken arm."

"I broke my arm and had a cast once," Daria said.

"Then you'll know what this leg bone is going to feel like," Tess joked. She had set out a bucket, a jug of water, a roll of paper towels, a wooden spoon, long strips of a rough fabric, and a bag labeled plaster of paris. "First, I'm going cover the fossil with damp paper towels," Tess explained, laying several wet towels on the exposed bone. "That will keep the plaster from sticking directly to our fossil."

"Next, I'll mix a white, powdery compound called plaster of paris with enough water to make a thin paste." Tess added water to the plaster in the bucket and used the wooden spoon to stir the two ingredients together.

"It looks like runny, white frosting," said Felix, leaning over to peer into the bucket.

Tess held up a strip of the rough fabric. "Now I'll soak strips of this burlap in the wet plaster and then lay them onto the fossil." She fitted and wrapped the mushroom cap with plaster-soaked strips until the fossil was completely **encased,** except for the place on the underside where it was still connected to the little pillar of rock. "Now we wait for the plaster to harden."

"But won't it take a long time for all the water to evaporate so it dries?" Amy asked.

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"Actually the water isn't evaporating, Amy. Evaporation is a physical change in matter—a change in states. Here, the powdery plaster and the water I added to it are undergoing what's called a chemical change in matter. Remember that a physical change may alter some properties or the appearance of a substance, but it doesn't change what the substance is actually made of—its chemical composition. When matter undergoes a chemical change, however, its chemical composition does change. Typically, molecules of the starting substances break apart, and the atoms rearrange themselves to form new molecules of different substances.

"After a chemical change takes place, you end up with new types of matter, often new compounds, with different properties than those you started with. In this case, the plaster dust and the water are combining in a chemical change to produce a new type of matter: solid, hardened plaster."

Tess set the bucket of wet plaster in the middle of the group. "Unlike physical changes in matter, many chemical changes are not reversible. In other words, they can't be undone. Another clue that a chemical change is taking place is that energy is used up or given off in the process, often in the form of heat or light. With that in mind, I want you all to put your hands on the outside of this bucket and tell me what you feel."

Everyone leaned in and did just that. "It's warm!" Kristal marveled.

"When a mixture of plaster of paris and water undergo a chemical change, heat is given off," Tess explained,"enough heat to make the plaster quite toasty as it hardens!" She stood and peeled off her latex gloves.

ACTIVITY PAGE **8.2**

NAME: _____

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LANGUAGE STUDIO 9: CHEMICAL MATTER

Physical and Chemical Changes Scavenger Hunt

Directions: Use the passage from Activity Page 8.1 to fill in the table below.

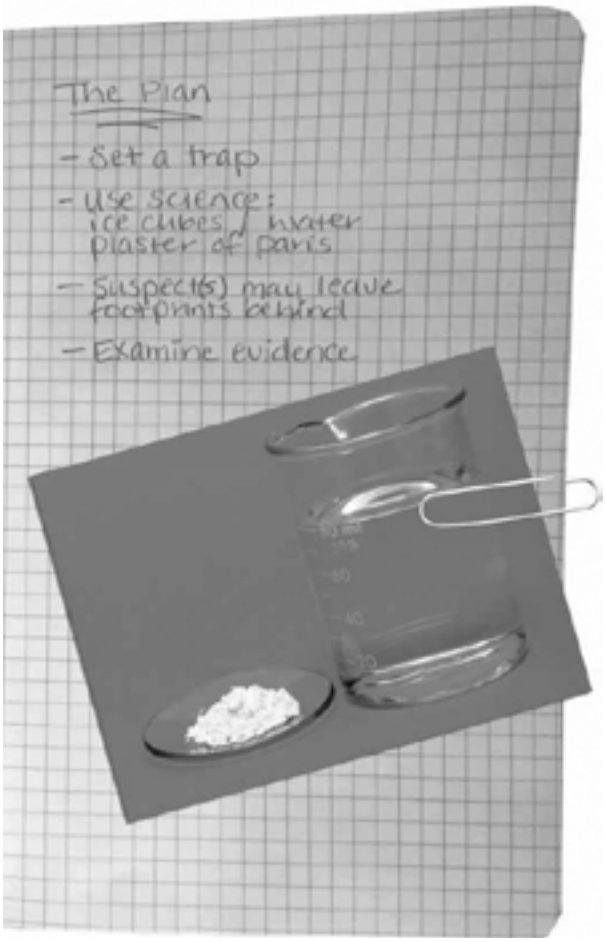
Physical Change	Chemical Change

Excerpt from Chapter 7, "The Clues Add Up"

Amy picked her way slowly across the clearing toward the kitchen tent, trying not to make a sound. The moon had risen in the star-**spangled** sky as a silver **sliver** that gave off just enough light so she could see the shapes of all the tents. She paused and listened outside Tes's tent, but she heard nothing and hoped Tes's was sound asleep. As Amy neared the kitchen, a familiar shape detached from the larger shape of the canvas structure.

"What took you so long?" Matt said in a loud whisper. "I've been waiting here for half an hour."

Amy placed a finger gently on her brother's lips. "Not so much noise. I'm late because Daria was tossing and turning and it took forever for her to fall asleep."



"Julian was asleep in record time, but Felix kept fiddling with his backpack for quite a while." Matt swatted at an insect. "So what are we doing here?"

"We're setting a trap for our fossil thief," Amy replied.

"Do you know who it is?"

Amy answered thoughtfully. "A good detective suspects everyone until she has the evidence to prove who did what—and why."

"Okay, Miss Good Detective—how exactly are we going to do that?"

"Well, I'm guessing that whoever took the fossils is feeling pretty scared right now, because of the sheriff coming tomorrow. It's just a **hunch**, but I think he or she might try to return the fossils to the lab tent tonight."

"You mean we have to stand guard here all night and keep watch?" Matt hissed. "Sis, I'm so tired I can hardly keep my eyes open."

Amy shushed her brother again. "We're not going to stand guard. We're going to use chemistry to identify the culprit instead."

"Chemistry?" Matt asked, in a tone that made it sound like he thought his sister was crazy. "What do we know about chemistry that could help solve a crime?"

"Quite a bit, actually, if you've been paying attention over the past few days." Amy lifted the flap of the kitchen tent. "Follow me."

She slipped inside and flicked on her flashlight. After grabbing a big bowl and a dishtowel from a shelf, she headed over to the little refrigerator. "First, we need ice," she said, handing Matt the bowl and laying the towel in the bottom of it. As she emptied the ice cubes from two trays into the bowl, the towel muffled their clatter. She listened for a minute, straining to hear any sounds that might indicate someone else was awake. Except for the crickets, there was silence. "Now, let's head for the lab," she instructed.

Amy stopped outside the lab tent and took the bowl of ice cubes from Matt. One by one she placed the ice cubes on the ground directly in front of the tent's entrance.

"Amy, what on earth are you doing?" Matt asked impatiently.

"I'm exploiting a physical change in matter as the first step in solving the case," Amy replied. "The ice cubes will slowly melt over the next few hours. They'll change states from

a solid to a liquid, making the ground wet here right in front of the tent. Anyone who enters the lab will get the soles of his or her shoes nice and damp."

"So what good do wet shoes do us?" The irritation in Matt's voice was growing.

"Trust me." Amy stepped inside the lab, flicked on her flashlight, and shone it where boxes and supplies were stacked in one corner. "Help me find the plaster of paris."

Matt quickly found the bag of white powder and dragged it into the center of the tent. "Okay, now what?"

Amy handed her brother a pair of latex gloves from a box on a shelf, and put on a pair herself. "Help me scatter plaster dust on the floor of the tent. Let's start in the far corner and work back toward the entrance."

"Amy, this is not just crazy," Matt said, starting to scatter the plaster dust, "but Dr. Forester is going to be very annoyed when she sees this mess."

"The plaster is the second part of my plan and makes use of a chemical change," Amy said. "Remember what happened when Tess mixed water and plaster of paris at the dig site today?"

"It underwent a chemical change and the wet plaster hardened."

"Exactly. So if someone comes into the lab tent tonight, he or she will step in the water from the melting ice cubes just before entering. The soles of this person's shoes will be wet as he or she starts to walk around—"

"—and the plaster dust will stick to them." A grin started to spread across Matt's face. "The plaster and water will undergo a chemical change—"

"—and harden into plaster," Amy finished. "We saw today how well plaster sticks to things. It should stick to shoe bottoms at least as well. Then, tomorrow morning at breakfast, we'll check everyone's shoes, and whoever is sporting plaster in the treads will have a lot of explaining to do."

Matt was quiet for a long moment. "Amy, you are a good detective. That's brilliant."

Amy beamed.

NAME: _____

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9.2 ACTIVITY PAGE

LANGUAGE STUDIO 9: CHEMICAL MATTER

See-Think-Wonder Images

Directions: Look at the images below. Think about what might be happening in each image. Use the image to fill in the See-Think-Wonder Graphic Organizer on Activity Page 9.3.

ACTIVITY PAGE **9.3**

NAME: _____

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LANGUAGE STUDIO

LANGUAGE STUDIO 9: CHEMICAL MATTER

See-Think-Wonder Graphic Organizer

Directions: Use the images on Activity Page 9.2 to help brainstorm ideas to fill in below.

See	Think	Wonder

Picture My Story

Directions: Write a story that tells what is happening in your image.

ACTIVITY PAGE **10.2**

NAME: _____

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Writing Rubric

Directions: Review the Writing Rubric below. Be sure to keep it in mind as you complete Activity Page 10.1.

Question	3 Mostly	2 Somewhat	1 Not Really
Did I use connector words in my sentences to describe my image? *(because, as, since, so, therefore, due to, etc.)*			
Did I use complete sentences in my writing?			
Do all of my sentences begin with a capital letter?			
Do I have punctuation at the end of all of my sentences?			
Did I explain what was happening at the time my image was taken?			
Did I explain why this image is important to my culture?			

Excerpt from Chapter 8: "Cracking the Case"

Amy took a bite of her pancake. It was wonderful and she wished she could concentrate on simply enjoying it. But she was focused on the results of another chemical change this morning, one that had hopefully left traces on someone's shoes. She waited until everyone was busy eating pancakes, and then casually let her fork slip through her fingers.

"Whoops, dropped my fork," she said easily, and ducking under the table she quickly scanned the bottoms of everyone's shoes. Her plan had worked! Amy sat up and stared at Matt as he raised his eyebrows questioningly. She thought for a moment how to communicate her discovery, and then picked up the bottle of maple syrup. "Matt, would you pass the syrup to Julian?" she said, trying to sound casual. "It looks like he needs more."

Matt's eyes widened in surprise.

Felix was already helping himself to seconds. "These pancakes are great, Tess. Too bad Dr. Forester missed them."

"She planned to be back before we headed up to the dig site," Tess replied, "so I'm guessing she and the sheriff will be here soon. I'll make more batter when they arrive."

Amy noticed that when Tess said this, Julian swallowed hard and put down his fork. He looked scared. Amy's mind raced as she tried to think of what to do next. "Since we're going to put plaster jackets on more fossils at the dig site today," she said, turning to Tess, "how about Matt and I load up the plaster of paris and the other things we'll need?"

"That would be great," Tess said, pouring herself some coffee. "I can sit here and relax."

"Actually, why don't you help us, Julian?" Amy added, as she got up from the table. "It'll go faster with three."

When Amy stepped inside the lab, she saw the shoe prints in the plaster dust on the floor. They led from the entrance to the table, where all the missing fossil fragments now lay in a neat row.

Julian stopped outside the tent entrance and then stepped inside reluctantly.

"I suspected that whoever took these fossils would bring them back," Amy said quietly, "what with the sheriff coming and all."

Julian looked about to deny it, but then stopped and let out a huge, unhappy sigh. "How did you know it was me?"

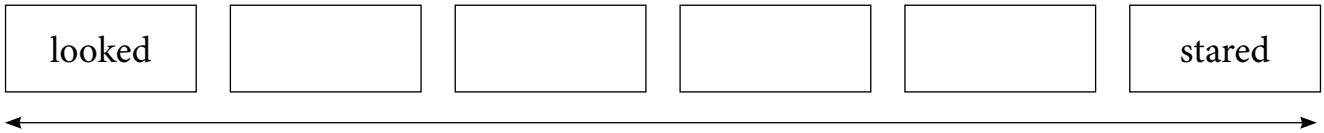
Shades of Meaning Clues

Directions: Some words have very similar definitions but still have small differences in meaning. Understanding these small differences lets you appreciate the shades of meaning in words or phrases. Sometimes two words have similar meanings but one word's meaning is stronger or more forceful than the other's. For example, excited *or* entusiasmado *is a stronger meaning of the word* happy *or* feliz.

With your partner, read these sentences from Chapter 8 that describe how a person is seeing *something. The* seeing *words are underlined. Then fill in the boxes in order from weakest word to strongest word. The first and last words are filled in for you.*

Chapter 8 Sentences:

- Felix eyed the pancakes hungrily.
- "Whoops, dropped my fork," she said easily, and ducking under the table she quickly scanned the bottoms of everyone's shoes.
- Kristal peered at the pancake on her plate.
- Amy noticed that when Tess said this, Julian swallowed hard and put down his fork.
- Amy sat up and stared at Matt as he raised his eyebrows questioningly.
- Every few minutes she turned and looked out into the darkness, in the direction Dr. Forester had driven away before dinner.



ACTIVITY PAGE **12.1**

NAME: _____

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LANGUAGE STUDIO 9: CHEMICAL MATTER

Directions: Underline key details as you read this passage.

Excerpt from Chapter 8: Cracking the Case

Julian looked about to deny it, but then stopped and let out a huge, unhappy sigh. "How did you know it was me?"

Amy explained about the ice, the plaster dust, and the shoes. Julian groaned and sat down heavily on a wooden crate full of tools. "I suppose you're going to tell Dr. Forester when she gets here—and the sheriff."

"How about you tell us why you took the fossils in the first place?" Amy said.

Julian hung his head and said, "I didn't mean to take them, really. Everything just went wrong." He paused and then plunged ahead. "Remember when Dr. Forester was so excited about the first set of fossils, but wanted us to wait until morning to see them? Well, I didn't want to wait. So I snuck in here later that night to see them for myself. I'd picked one up to look at it more closely. Then I thought I heard someone coming, and without thinking, I shoved the fossil into my pocket and slipped out the back of the tent."

"Why didn't you just admit it the next morning when Dr. Forester found it missing, and give it back?" Matt asked. "It's not like you meant to steal it. She would have believed you."

"I didn't think she would. I figured she'd be really angry, and send me home, and I didn't want that to happen. I thought I'd just put the fossil back when no one was looking, and she'd just assume she had misplaced it. But every time I tried to do that, either Tess or Dr. Forester was here in the lab." Julian poked at the tent floor with the tip of his shoe. "Then we found more fossils, and Dr. Forester started talking about great it would be if she could get some of them to fit together. I thought since I had the missing piece, maybe I could use it to figure that out, and maybe it would turn out be an important new discovery, and I might be famous, and then my dad—," Julian's voice trailed off.

"What about your dad?" Matt asked quietly.

"Then my dad might be proud of me, like he is of my brother Jack."

Amy and Matt exchanged a long look.

Julian hung his head again and picked at a seam on his jeans. "It was a silly idea, of course. Once I had the fossils, I couldn't make any sense of them. I couldn't even figure out a way to put them back in the lab without getting caught. So I put them in a sack and hid them under a bush."

"And then Dr. Forester went off to get the sheriff, thinking we'd been robbed by fossil thieves," Amy said.

Julian nodded. "So last night I brought the fossils back and put them there on the table. It seemed better than being caught with them red-handed or having to admit in front of everyone what I did. I didn't think much further than that."

No one spoke for a long moment. Julian looked from Amy to Matt and back to Amy again. "So, what are you going to do? Are you going to tell Dr. Forester I stole the fossils?"

"No, but you are," Amy said quietly. "I think Dr. Forester will understand that it wasn't stealing in the normal sense of the word, because your **intentions** were good."

Julian looked doubtful, but he nodded, sighing. "You're right. I'd feel better if I came clean, even if Dr. Forester decides to send me home."

Chronological Order: Crime Solved

Directions: Chronological order *means the order in which the events happened in real time. You think about which event happened first, what happened second, and what came next.*

Special words help us to order events:

first, then, next, after that, finally, while, soon, also, last

Can you put Julian's confession in chronological order? Work with a partner and put these sentences in order. Put a "1" on the line next to what you think happened first. Keep numbering your sentences with your partner. Write the sentences in correct order on the lines below. Then, share your answers with the class when you are done. The first and last one is done for you.

Order	Sentence
1	I didn't mean to take them, really. Everything just went wrong.
	I thought since I had the missing piece of the fossil puzzle that maybe I could use it to figure out how they all fit together. So I took the other fossils.
9	I'd feel better if I came clean, even if Dr. Forester decides to send me home. It's better to tell the truth. I took the fossils.
	I thought since I had the missing piece that maybe I could use it to figure out the puzzle, and maybe it would turn out be an important new discovery, and I might be famous.
	I thought my dad would be proud of me for making a big discovery. He's so proud of my brother Jack.
	I thought I'd just put the fossil back when no one was looking.
	I'd picked one fossil up to look at it more closely when I thought I heard someone coming, and without thinking I shoved the fossil into my pocket and slipped out the back of the tent.
	Last night I brought all of the fossils back and put them on the table.
	I put all of the fossils in a sack and hid them under a bush.

Directions: Write the sentences in correct order on the lines below. Then, share your answers with the class when you are done. The first and last one is done for you.

Excerpts from Chapter 8: "Cracking the Case" and Chapter 9: "A New Day, A New Dinosaur!"

They sat down at the table with the others just as Tess came walking up with a huge platter of hot, fluffy pancakes and a bottle of maple syrup. "Good morning! This morning's breakfast is brought to you by another amazing chemical change!"

Felix eyed the pancakes hungrily. "Um, do you think you could explain that statement *while* we eat, rather than before?"

"Absolutely," Tess said, handing him the platter. "Last night after the campfire I was thinking about chemical changes that we encounter every day. Some of the most familiar ones have to do with food. When people cook or bake things, all sorts of chemical changes take place. For example, pancakes are light and fluffy thanks to a chemical change between two ingredients: baking soda and buttermilk. When these two substances are mixed together, atoms are rearranged and new types of molecules are produced. One of those new molecules is the gas carbon dioxide. Tiny bubbles of carbon dioxide gas form throughout the pancake batter and are trapped as the batter cooks and solidifies. The result is light and fluffy pancakes that are honeycombed with tiny air pockets."

Kristal peered at the pancake on her plate. "So that's why they look like they're full of little holes. I always wondered about that."

Amy shook her head. "It's been really interesting, especially learning about chemical changes. I like the idea that chemical changes can turn one type of matter into another by shuffling atoms around that go on to bond in new combinations."

"Actually, everywhere you look in nature you see the recycling of elements thanks to chemical changes." Tess reached over and plucked a blade of prairie grass from a nearby clump. "Like all plants, including plants that grew 300 million years ago, this grass carries out something called **photosynthesis**. That's a process in which water and the gas carbon dioxide undergo a chemical change."

"Carbon dioxide—that's the same gas that makes pancakes fluffy, right?" Kristal asked.

"Yes, that's the one," Tess said. "In photosynthesis, the atoms making up molecules of water and carbon dioxide are recombined, using energy from sunlight, to produce molecules of sugar and oxygen gas. Plants release the oxygen into the air, and use the sugar molecules to grow and build their bodies, including the parts that animals and people eat for food."

"So atoms of carbon, oxygen, and other elements that were once in the air or the water became part of plants, and then became part of us when we ate the plants," Daria said.

Cause and Effect

A chemical change is an example of **cause and effect**. A **cause** is why something happens and an **effect** is what happens. Think about the pancakes. The **cause** is mixing the ingredients together. The **effect** is the gas bubbles and also a delicious pancake!

There are clue words for cause and effect including these: *if*, *then*, *because*, *since*, and *so*.

Directions: Use the text clues to think of an effect or a cause. Draw a picture to show your answer and then write a sentence to explain your picture. Share your answers with a classmate when you are done.

Cause	Effect
If there is a rainstorm,	
	I earned all As.
Because I woke up late for school,	

NAME: _____

DATE: _____

LANGUAGE STUDIO 9: CHEMICAL MATTER

Fossil Dough Recipe

Directions: Read the steps below to create your own fossil.

Each group will receive one of the three large mixing bowls and a set of measuring cups, or the teacher may provide each group pre–measured ingredients. Each group will receive wax paper and fossil figurines.

Materials and Ingredients

1 cup salt

2 cups of flour

1 cup of water

Large mixing bowls

Set of measuring cups

Mixing spoon

Wax paper for rolling and molding dough

Fossil figures

Instructions

1. In a large bowl mix salt and flour together.
2. Gradually stir in water. Mix well until it forms a doughy consistency.
3. Turn the dough onto the wax paper.
4. Knead, press, and mold the dough with your hands until smooth and combined.
5. Make small balls the size of your fist.
6. Flatten the small balls on the wax paper.
7. Make an impression fossil. Place one figure into each dough ball to create a fossil impression.
8. Take the figure out of the dough ball after a print is made.
9. Let the dough dry overnight.

Group Participation Rubric

Directions: How well did I work with my group today? Rate your participation.

Question	3 Great	2 Okay	1 Not my best
Did I respect the group by having a positive attitude?			
Did I pay attention to our task?			
Did I contribute ideas for our task?			
Did I listen to and support the other members of my group?			
Was I prepared?			
Did I do my best work today?			

NAME: _____

DATE: _____

LANGUAGE STUDIO

LANGUAGE STUDIO 9: CHEMICAL MATTER

Fossil Impressions

An **observation** is made by looking at something carefully. When we observe we measure, examine, and analyze to make a conclusion. We make conclusions based on facts we collect. We call these conclusions **inferences**.

For example, we notice that the school cafeteria sells fruit every day. We keep a notebook and **observe** that apples are sold more than any other fruit. We can make an **inference** that apples are the most popular fruit at our school. We know that apples are popular, but we do not have the information to know why apples are popular. We would have to make more observations and collect more data to get that **information**.

NAME: _____

DATE: _____

15.1 CONTINUED

ACTIVITY PAGE

LANGUAGE STUDIO 9: CHEMICAL MATTER

Directions: Choose three of the fossils you made. Complete the chart. Share your chart with members of your group.

Sketch of Fossil	Based on your drawings, what information does your fossil tell us?	What kind of inferences can you make about your fossil? Why?	What information are you not sure of?

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Lesson 1 (Native child): Apache Girl 1903 (photo) / Universal History Archive/UIG / Bridgeman Images; (Native Americans trading): Dustin Mackay; (Europeans trading): Interfoto / Interfoto / SuperStock; Lesson 2 (Tribe map): Lina Liberace; (Buffalo): Life on White / Life on White / SuperStock; Lesson 3 (Chief Spotted Elk): Chief Spotted Elk, 1899 (oil on canvas), Burbank, Elbridge Ayer (1858-1949) / Butler Institute of American Art, Youngstown, OH, USA / Museum Purchase 1912 / Bridgeman Images; (Women children horses): Dustin Mackay; (Man in grass): Joseph Ma; (Man leaning rock): Joseph Ma; (Horses running): Joseph Ma; (Three people talking): Joseph Ma; (Girl with bark): Joseph Ma; Lesson 5 (Man at river): Avi Katz; (Man carrying sticks): Avi Katz; (Man opening box): Avi Katz; (Raven moon sun): Avi Katz; (Whale and bird): Avi Katz; Lesson 8 (Grass plane): JTB Photo / JTB Photo / SuperStock; (River rapids fish): FogStock LLC / FogStock LLC / SuperStock; Lesson 11 (Cherokees forced relocation): Cherokee Indians are forced from their homelands during the 1830s, 1993 (colour litho), Tauss, Herbert (1929-2001) / National Geographic Creative / Bridgeman Images

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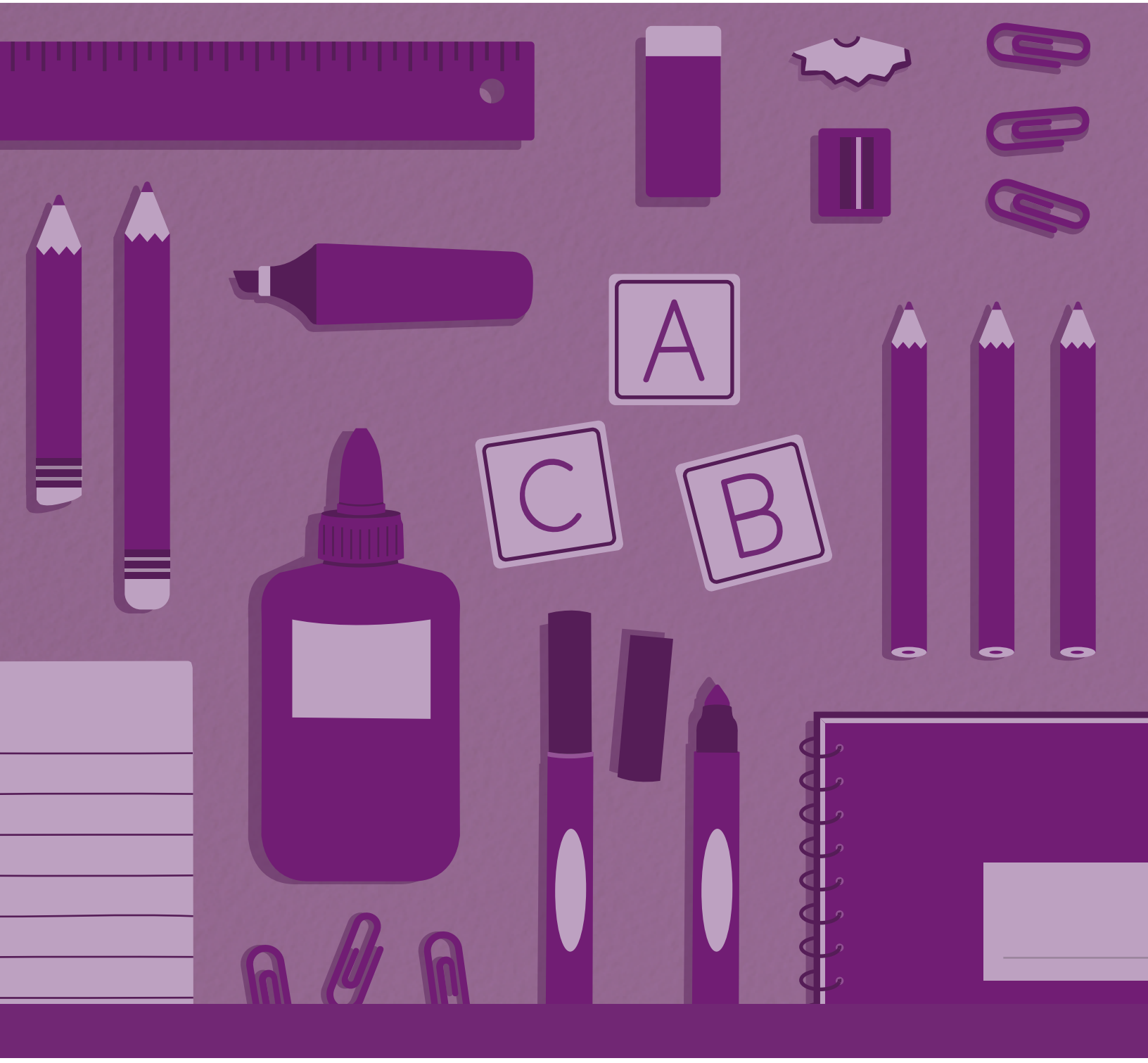
Activity Book | Grade 5



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