Day 1: Concept Introduction and Teacher Modeling

Mysterious, misunderstanding, spectacular, scary. Lightning enchants some people—and, with good reason—terrifies others.

In the United States alone, lightning ignites 10,000 forest fires and causes $100 million in property damage every year. Between 1940 and 1991, it killed 8,316 people in the U.S. Today the average number of lightning-related deaths in the U.S. is 80 per year, but fortunately, not everyone who is attacked by lightning becomes a fatality.

Terror on the Football Field

Exclusive Interview! Clint Hagewood of Forney, Texas, was waiting to practice with his high school football team on August 29, 1995, when he was struck by lightning.

"We were just standing on the field," he recalls. He heard a sharp crack, then a loud boom. "It slammed my jaw shut," he says. "I saw everybody else fall to the ground." When Clint got up a few minutes later and tried to seek shelter, he realized what had happened. "I was really drowsy and thirsty," he says. Later at the hospital, he felt painful muscle spasms throughout his body. "At the hospital they said [I] smelled like burning wires. I had to go to the bathroom but couldn't."

Almost a year later Clint still had frightening memories. "If you see a storm coming," he warns, "get inside!" Still, Clint was luckier than his friend and teammate, Clay Jones, who was struck by lightning at the same time. He was not nearly as fortunate—he died four days later.

http://www.nationalgeographic.com/lightning/

1. According to the context of the following sentence, what does the word fatality mean? "Today the average number of lightning-related deaths in the U.S. is 80 per year, but fortunately, not everyone who is attacked by lightning becomes a fatality."
   A. Statistic
   B. Death
   C. Injury
   D. Attack

2. What can the reader infer about Clint Hagewood?
   A. He no longer plays football.
   B. He never played football.
   C. He has permanent injuries from the storm.
   D. He had emotional scars from the storm.
Struck on the Golf Course

Professional golfer Lee Trevino tells his story

Professional golfer Lee Trevino was waiting out a rain storm during a golf game in Chicago on June 27, 1975. He and another player, Jerry Heard, sat on their golf bags only feet from the periphery of a lake.

"The lightning bolt struck the water--just started bouncing off the water--and hit Jerry Heard and I. I started shaking [and] hearing a ringing sound in my ear like a ball peen hammer. Now I'm off the ground, and it's got me all stretched out. At the time I guess it stops your heartbeat, and I'm gasping for air. As I woke up, I was all doubled up, my left arm was under my body, and there were people standing on the green holding towels over me because it was pouring rain, and the ambulance was over by the green."

Trevino was ministered for burns and back injuries but was playing golf again in two weeks.

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1. What does the word periphery mean in the following sentence, from the context of the sentence?

   "He and another player, Jerry Heard, sat on their golf bags only feet from the periphery of a lake."

   A. The edge of
   B. The center of
   C. The bottom of
   D. The middle of

2. What is a synonym for the word “ministered” as used in the context of the following sentence?

   “Trevino was ministered for burns and back injuries but was playing golf again in two weeks.”

   A. Prayed
   B. Blessed
   C. Treated
   D. Injured
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Short Response – 3 points
1. What does the author imply about combining lightning and water? Support your answer with information from the passage.

Short Response – 3 points
2. What does the author imply about Lee Trevino? Use examples from the text to support your answer.
Day 4: Paired Student Practice

When Lightning Strikes

A lightning flash can happen in half a second. In that instant, the lightning flash superheats the surrounding air to a temperature five times hotter than that on the surface of the sun. Nearby air expands and vibrates, forming sound that humans perceive as thunder. Sound travels more slowly than light, so it appears that thunder occurs later, when in actuality, it occurs first.

How It Works

The cloud bottom carries a negative charge. Positive charges may collect on the ground, buildings, boat masts, people, flagpoles, mountaintops, or trees.

A stepped leader—a negative electrical charge made of zig-zagging segments, or steps—comes partway down from the cloud. The steps are invisible; each one is about 150 feet long. When the stepped leader gets within 150 feet of a positive charge, a streamer (surge of positive electricity) rises to connect with it. The leader and the streamer formulate a channel. An electrical current from an object on the ground surges upward through the channel. It touches off a brilliant display specifically labeled a return stroke.

"I Felt No Pain"
Harold Deal, Greenwood, South Carolina

"I don't remember hearing any commotion, I don't remember any jolt. Next thing I knew the neighbor was over top of me, hollering at me, calling my name, and I was 48 feet from the point that I was originally standing. Where I was standing was on grass, and the next spring, later on, the grass kept growing, but where my footprints were, the grass all died.

"To this day I have never had any pain whatsoever. I've crushed my heel and felt no pain, which the doctor couldn't believe. I've got a finger caught in the snowblower, severed it completely one Saturday night; they sewed it back on at the hospital and I went back to work the next day. I can be exposed in sub-zero weather; I don’t have to be dressed in a long sleeved shirt or coat. I've never worn a jacket since '69; I got a picture showing me out in 26- and 30-degree-below-zero weather merely in a T-shirt and bib overalls. It's simply unexplainable!"

http://www.nationalgeographic.com/lightning/
Day 4: Paired Student Questions

1. In the following sentence, what does the word *perceive* mean as used in the context of the passage?

   “Nearby air expands and vibrates, forming sound that humans perceive as thunder.”

   A. See  
   B. Think  
   C. Watch  
   D. Hear

2. In the following sentence, what does the word *formulate* mean as used in the context of the passage?

   “The leader and the streamer formulate a channel.”

   A. Make  
   B. Connect  
   C. Rise  
   D. Make positive

3. What things can the reader infer about the effects of the lightning strike on Harold Deal? What things are unexplainable to him? Use information from the passage to support your response.

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Extended Response – 4 points

4. What does the author imply about the processes of thunder and lightning and their effects on one another? Use details from the passage to support your answers.

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Day 5: Assessment

A small girl fell sick in 1692. Her “fits”—convulsions, contortions, and outbursts of gibberish—baffled everyone. Other girls soon showed the same symptoms. Their doctor could suggest but one cause. Witchcraft.

That grim diagnosis launched a Puritan inquisition that took 25 lives. It also filled prisons with innocent people, and frayed the soul of a Massachusetts community called Salem.

Eagerly obedient to this warning from the church, the Puritans of New England searched their souls—and those of their neighbors—for even the faintest stains. These stern, godly folk were ready to stare down that roaring lion till Judgment Day saw him defeated.

But while the good people of Salem had their eyes on eternity, the lion walked softly among them during the 1670s and 1680s. Salem was divided into a prosperous town—second only to Boston—and a farming village. The two bickered again and again. The villagers, in turn, were split into factions that fiercely debated whether to seek religious and political independence from the town.

In 1689 the villagers won the right to establish their own church. They chose the Reverend Samuel Parris, a former merchant, as their minister. His rigid ways and seemingly boundless demands for compensation—including personal title to the village parsonage—increased the friction. Many villagers vowed to drive Parris out. They stopped contributing to his salary in October 1691.

Seeking release from the tension choking their family, Parris’s nine-year-old daughter, Betty, and her cousin Abigail Williams delighted in the thrilling tales spun by Tituba, a slave from Barbados. The girls invited several friends to share this delicious, forbidden diversion. Tituba’s audience listened intently as she talked of telling the future. The lion roared in February 1692. Betty Parris began having “fits” that defied all explanation. So did Abigail Williams and the girls’ friend Ann Putnam. Doctors and ministers watched in horror as the girls contorted themselves. They cowered under chairs, and shouted nonsense. The girls’ agonies “could not possibly be dissembled,” declared the Reverend Cotton Mather, one Massachusetts’ leading citizens.

Lacking a natural explanation, the Puritans turned to the supernatural. The girls were bewitched. Prodded by Parris and others, they named their tormentors: a disheveled beggar named Sarah Good, the elderly Sarah Osburn, and Tituba herself. Each woman was something of a misfit. Osburn claimed innocence. Good did likewise but fingered Osburn. Tituba, recollection refreshed by Parris’s whip, confessed—and then some. “The devil came to me and bid me serve him,” she reported in March 1692. Villagers sat spellbound. Tituba spoke of black dogs, red cats, yellow birds, and a white-haired man who forced her to sign the devil’s book. There were several undiscovered witches, she said. They yearned to destroy the Puritans. Finding witches became a crusade—not only for Salem but for all Massachusetts. Before long the crusade turned into a convulsion. The witch-hunters ultimately proved far more deadly than their prey. Salem’s witchcraft trials claimed 25 lives. Nineteen “witches” were hanged at Gallows Hill in 1692.
defendant, Giles Cory, was tortured to death for refusing to enter a plea at his trial. Five others, including an infant, died in prison.

Each of the four rounds of executions deepened the dismay of many of the New Englanders who watched the witchcraft hysteria run its course. On October 3, 1692, the Reverend Increase Mather, president of Harvard College, denounced the use of so-called spectral evidence. “It were better,” Mather admonished his fellow ministers (including his son Cotton), “that ten suspected witches should escape than one innocent person should be condemned.”

Gov. William Phips grew disgusted when his own wife was mentioned by the afflicted girls. He was determined to quell the madness. He suspended the special Court of Oyer and Terminer he had earlier established to hear witchcraft cases. He replaced it with a new Superior Court of Judicature. This disallowed spectral evidence. That court condemned only 3 of 56 defendants. Phips pardoned them along with five others awaiting execution. In May 1693 Phips pardoned all those who were still in prison on witchcraft charges. They were free—provided they could pay their jail bills.

The time to heal fell under the gentle hand of the Reverend Joseph Green. In 1697 he succeeded Samuel Parris as minister in Salem Village. Green made many necessary changes in his parish. At Green’s urging, for example, Ann Putnam, one of the leading accusers, offered a public apology in 1706.

Massachusetts as a whole repented the Salem witch-hunt in stages. The colony observed a day of atonement in 1697. It prompted one of the judges to seek public forgiveness for his role in the trials. In 1711 the legislature passed a bill restoring the rights and good names of some of the victims of “those dark and severe prosecutions.” Restitution was awarded to their heirs. Massachusetts apologized again in 1957. The city of Salem and the town of Danvers (originally Salem Village) dedicated memorials to the slain “witches” in 1992.

http://netscape.nationalgeographic.com/salem/index.html
Day 5--Questions

1. What does the word compensation mean as used in the context of the following sentence:

   “His rigid ways and seemingly boundless demands for compensation—including personal title to the village parsonage—increased the friction.”
   A. Religion
   B. Establishment
   C. Payment
   D. Goodness

2. What does the word diversion imply as used in the following sentence:

   “The girls invited several friends to share this delicious, forbidden diversion.”
   A. Entertainment
   B. Audience
   C. Witchcraft
   D. Religion

3. What does the author imply about witchcraft in Salem?

   A. It really happened.
   B. People only thought it happened.
   C. It is still going on.
   D. It was caused by a little girl.

4. Short Response--What words are used by the author to describe fits or displays of witchcraft? Use information from the passage to support your response.

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5. Extended Response--What inference can be made about the effects of religion on the outbreak of the witchcraft hysteria in Salem? Use information from the passage to support your response.

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