

# 7<sup>th</sup> Grade NTI DAY #25

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THE UNIVERSITY OF CHICAGO

CHICAGO, ILL.

DEAR MR. [Name]

I have your letter

of the 10th inst.

and am glad to hear

that you are well and

hope to hear from

you again soon.

*Instructions*

1. Read and annotate the following article.
2. Then respond to the items that follow.

## **The Orchid's Secret** **by Josh Adler**

Deep in the jungles of Colombia there is a kind of flower that attracts bees with its unique perfume. The male bees store as much scent as possible from this particular flower on their hind legs. The male bees that collect the most scent attract the female bees to mate with them. In Venezuela there is a flower people collect for its large white or yellow petals. Few people ever find it, though, since it only blooms for a few days. There is a small pink and yellow flower that only grows in a very specific part of the state of Florida. It also only grows on trees, and wind or birds may spread its seeds. These flowers are some of the most rare and delicate species in all of nature. They are all types of orchids.



For hundreds of years orchids have been prized discoveries of collectors and adventurers hoping to find new and exotic breeds of the flower. In her book *The Orchid Thief*, author Susan Orlean tells how in the 1800s orchids became popular in Europe, which made them very valuable. Many "orchid hunters" set out to find and bring back new types of orchids to sell. However, many of the men who went looking for the mysterious orchids met with tragedy instead. Orlean relates that "dozens of hunters were killed by fever or accidents or malaria or foul play. Others

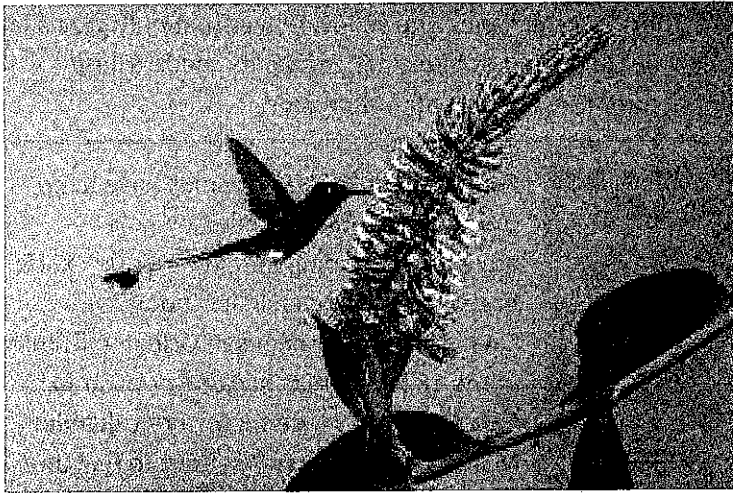
became trophies for headhunters or prey for horrible creatures . . . ." Sometimes orchid hunters even were injured or killed by other people.

On one trip to find orchids in 1901, eight hunters ventured to the Philippines, which is a group of islands in the Pacific Ocean. A tiger ate one hunter, another was badly burned, and five more completely disappeared. The trip's only survivor brought back 7,000 orchids. Even modern-day orchid hunters, like Tom Hart Dyke, still face incredible dangers to collect the flowers. He and his partner, Paul Winder, were held as prisoners for over nine months after they were captured on an orchid hunt in Central America.

While the plants have long been valued for their beauty, they may be even more important to science. The Orchid's Secret and our understanding of co-evolution. Unlike plants that can self-pollinate, orchids need very specific insects or birds to spread their pollen. The process by which insects, the wind, or birds spread the pollen of different flowers is called pollination. Pollen is a powder produced by plants that contains their genetic material. In order for the plants to reproduce, the pollen must be physically moved to the flower's stigma, which contains an egg. Now the fertilized egg can become a seed. Birds and insects can pollinate plants by touching many different flowers and spreading the pollen around.

Orchids evolved to attract insects and birds. Because there are many different species of orchid, there are also many different ways the orchids attract their pollinators. Orlean explains that "many species look so much like their favorite insects that the insect mistakes them for kin [other insects], and when it lands on the flower to visit, pollen sticks to its body.... Another orchid imitates the shape of something that a pollinating insect likes to kill.... Other species look like the mate of their pollinator, so the bug tries to mate with one orchid and then another... and spreads pollen from flower to flower each hopeless time."

Other orchids don't use their shape at all, but rather produce specialized scents to attract specific insects, such as bees, beetles or flies. Some orchids smell like cake, some like chocolate, and some like rotting meat. All these smells may seem weird or gross, but they exist to lure creatures to their pollen and help the orchids survive. The strategies to attract



insects and spread their flowers' pollen go on and on. Each family of orchids has a unique kind of insect or bird that visits their flowers, as well as its own way of attracting them. It has worked, too. According to NOVA, a science television series on PBS, "orchid species number more than 25,000 worldwide." That is more kinds of species than any other flower on the planet, and new ones are still being found.

Orchids and the insects that pollinate them are one of the most amazing examples of evolution. Though their degree of co-dependence varies, as it is apparent that at least some orchids are more reliant on their pollinators than the pollinators are on the orchids, the degree of

evolutionary specialization is still very impressive. Research by Harvard scientists suggests that certain species of orchid evolved specifically to attract orchid bees, which collect a wide variety of scents from various plants in preparation for mating. In another case, an orchid mimics a female's smell and appearance -and the male pollinator gets nothing out of the bargain whatsoever. By tricking the insects that collect its pollen, the orchid has survived since the time of the dinosaurs. Shh! It's a secret.

### Follow-up

1. According to the article, what are 5 specific examples (evidence) of how orchids increase their probability of reproduction with the help of animals?
2. Even though there are many examples of how the orchids benefit from their animal pollinators, what are 2 ways that the animal pollinators gain benefit from the orchids?
3. What claim is this article trying to make based on the evidence and reasoning that the authors provide?

# The Birth of Romulus, Remus, and Rome

by Dan Stahl

7<sup>th</sup> Grade Social Studies

Clark/Bloomfield

NTI Day 25



*illustration of Romulus and Remus*

Rome is known as the Eternal City, but that's an exaggeration. Rome may be old, but it hasn't been around forever. It was founded in or around the 8th century BCE. According to legend, the date of its founding is 21 April 753 BCE.

Rome's age doesn't matter as much as its history. The city began as a village in western Italy. Over the following centuries it grew into an empire that stretched across Europe, North Africa, and the Middle East. A man who lived in Rome as it was growing wrote that its power was second to none except the gods.

That man, whose name was Livy, was a historian. He wrote 142 books about the history of Rome. He believed the city did not develop by chance but by fate.

Livy's books are a mix of fact and legend. What mattered to him was not whether every event he described happened. What mattered was the behavior of the people he wrote about. He urged his readers to study these people and learn from them.

Here is his account of how Rome was founded. You may believe it or not, as you like. What you should do is think about it and learn from it. Oh, and one more thing: enjoy it.

\* \* \*

Before Rome, there was Alba Longa. It was another city in the same part of Italy. The king who ruled it had two sons, Numitor and Amulius. He left his kingdom to Numitor, the older of the two. However, Amulius ousted his brother and took over the kingdom. He then had Numitor's sons executed. As for Numitor's daughter, he made her a priestess. He pretended it was an honor, but it wasn't. It was a ruse to stop her from becoming a mother.

She became a mother anyway. The father of her twin boys was said to be the god Mars, but even he could not protect her and her sons from Amulius. The king had her arrested and ordered that her baby boys be drowned.

Accordingly, the boys were taken to a river. This river, known as the Tiber, had overflowed its banks. The overflow had collected in pools that blocked access to the river. *The pools will do*, thought the king's servants. They left the boys floating in a basket on one of the pools.

Soon the water receded, leaving the twins on land. Nearby was a thirsty she-wolf, which heard the boys crying and veered toward them. She nursed them and gave them a tongue bath. At that point the three of them were discovered by a shepherd. The shepherd was Faustulus, the overseer of the king's flocks. He took the boys home and entrusted their upbringing to his wife.

Once the twins had grown up, they started hunting in the woods. They did not limit themselves to animals. They also attacked robbers, taking their loot and distributing it to neighboring shepherds. The shepherds then teamed up with the twins, forming a posse of youths.

The robbers disliked being robbed and wanted revenge, so they ambushed the posse of young men. One of the twins, Romulus, held his ground. The other twin, Remus, was captured. The robbers hauled Remus to King Amulius, claiming he was a criminal. *He took part in raids on the lands of Numitor*, they said. Accordingly, Remus was turned over to Numitor for punishment.

Concern for Remus led Faustulus to approach Romulus. Faustulus had suspected from day one that the twins were royalty. He knew about the king's order of infanticide, and he knew his discovery of the babies coincided with that order. He now shared this knowledge with Romulus.

Numitor also discerned the truth. While Remus was in his keeping, Numitor heard about the twin's brother. Learning of their age and nobleness, he deduced their identity.

Hence trouble awaited King Amulius on two fronts. First there was Romulus. He was organizing an ambush against the king with the shepherds. Meanwhile, Remus had formed another group at the estate of Numitor. When Romulus's group made its attack, Remus's group came to their assistance. In this way they struck down the king.

Upon the king's death, Numitor called a meeting of the people. In it he disclosed his brother's crimes and his grandsons' identity. At last he revealed the death of Amulius. Romulus and Remus then hailed their grandfather as king. Everyone present approved, and Alba Longa was restored to Numitor.

Now Romulus and Remus were itching to found a city of their own. It would be where they had been

abandoned and brought up. The shepherds and others joined them.

The brothers' plans hit a snag, however. Ambition ran in their family, and now a rivalry developed between them. Because the brothers were twins, neither could claim superiority by age. How, then, to determine the ruler of the new city? Or which of them it should be named after? The gods would have to decide. To receive their answers, Romulus and Remus each went to a separate hill where they awaited a sign from the heavens.

A sign-six vultures-came to Remus first. Just as the sign was proclaimed, twelve vultures came to Romulus. Each brother was hailed by his followers as king. Remus's group justified its claim by the order of the signs, while Romulus's group cited the number of birds. The two groups started debating and wound up brawling. In the turmoil Remus got clobbered and dropped to the ground, dead.

There is another story of Remus's death. In this version, the walls of the brothers' city were under construction. Remus jumped over Romulus's walls to make fun of them. Romulus killed him in a rage, uttering these words: "The same to anyone else who trespasses on my walls!"

In this way Romulus became the sovereign of Rome. The city had been born and was named after its founder.

*Note: The story of Romulus and Remus related here is an adaptation. Its source is Book 1 of Ab Urbe Condita by Titus Livius (Livy).*

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Whose account of Rome's founding is provided in the text?

- A. A Roman king named Faustulus's account
- B. A Roman historian named Livy's account
- C. An ancient historian named Amulius's account
- D. A shepherd named Remus's account

2. Who are the main characters in the story?

- A. Amulius and Romulus
- B. Numitor and Remus
- C. Faustulus and Numitor
- D. Romulus and Remus

3. Amulius wanted to prevent Numitor's descendants from reclaiming the kingdom.

What evidence from the text supports this conclusion?

- A. The father of Romulus and Remus was the god Mars.
- B. Amulius tried to stop Numitor's daughter from becoming a mother, then tried to kill her sons.
- C. Amulius turned Remus over to Numitor for punishment.
- D. Faustulus told Romulus the truth about his birth.

4. How are Romulus and Remus similar to Amulius and Numitor?

- A. Both sets of brothers had children that reclaimed their kingdoms.
- B. Both sets of brothers decided to establish new cities.
- C. Both sets of brothers experienced loss because of uncontrolled ambition.
- D. Both sets of brothers fought against the shepherds.



5. What is the main idea of this passage?

- ☐ A. Much of what we know about Roman history is due to the 142 books written by Livy.
- B. Amulius and Numitor ruled a great kingdom that eventually became Rome when Romulus killed his twin Remus.
- C. Romulus and Remus both believed they were chosen by the gods to become ruler, leading them and their followers to fight over who should rule the new city.
- D. Romulus and Remus retook their grandfather's kingdom and planned to build their own city, but the rivalry that developed between them left Remus dead.

6. Read these sentences from the text.

"Faustulus had suspected from day one that the twins were royalty. . . . Numitor also discerned the truth."

As used in the passage, what does the word "discerned" mean?

- ☐ A. rejected
- B. misunderstood
- C. recognized
- D. denied

7. Choose the answer that best completes the sentence.

The rivalry between the twins left Remus dead. \_\_\_\_\_, Romulus became the sovereign of Rome.

- A. Otherwise
- B. Consequently
- C. Initially
- D. For example

8. How does Remus die in the first version of the story?

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9. How does Remus die in the second version of the story?

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10. Livy's purpose in writing the history of Rome was to help readers learn from his characters. What lesson might readers learn from his account of how Rome was founded?

Support your answer with evidence from the text and images.

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Name: \_\_\_\_\_ Class: \_\_\_\_\_

## Excerpt from Believing in Horses

By Valerie Ormond  
2012

*Valerie Ormond is a former naval intelligence officer and a freelance writer. Believing in Horses tells the story of a young girl who moves to Maryland and gets a new horse, who she develops a close bond with. In this excerpt, Sadie and her horse get caught in a storm. As you read, take notes on what Lucky's company provides Sadie.*

- [1] When no one else showed up at the barn, Sadie rode Lucky in the outdoor arena, schooled him over small jumps, and worked on her equitation<sup>1</sup> skills. She thought back to her first day on Lucky when the big blue heron had swooped down, and realized how far they had come together. Perhaps because there were no other riders in the barn, Sadie felt a tinge of loneliness, and was relieved that she had her best friend, Lucky, right there.



*"A Girl and her Horse" by Garrett is licensed under CC BY-NC-ND 2.0.*

After dismounting, Sadie reasoned that it would be safe if she took Lucky for a walk on the trail, leading him instead of riding him. It made sense to her. She had never done it before, but then again she had never thought of it before. She set out on foot and the uneven footing gave her a new appreciation for the abilities of trail horses. After catching a branch or two in the face, she wondered why horses didn't put up more of a fuss and started paying closer attention to what was ahead of her. Too stubborn to turn around, Sadie forged ahead in the thick mud and tried to enjoy the serenity<sup>2</sup> of the woods.

The trail looked quite different on foot than it did atop her big horse. She followed what she thought was the right path and ended up surrounded by holly trees and sticker bushes, clearly in the wrong place. Lucky looked at her as if to say, "I told you it was the other way," and she couldn't help but laugh.

"I'll listen to you at the next fork in the road," she said, and hugged his neck. They got back on track and descended deeper into the woods; the sounds of deer in the distance were muffled by the leaves rustling as the wind picked up.

- [5] Sadie thought she heard a car door shut and found that odd. They were far out in the woods, and she'd never heard anything like that before back here. She chalked it up to her imagination, or a branch breaking, and put her mind back to navigating the roots and rocks on the trail and avoiding the branches that came at her face. Then it began to rain.

1. the art and practice of horsemanship and horse riding  
2. **Serenity** (*noun*): the state of being calm or peaceful

It wasn't a drizzle; it was a downpour. Sadie still hadn't quite figured out this Maryland weather. It seemed like it could be bright and sunny one minute, pouring rain the next, and then bright and sunny again. It hadn't been a nice day, but she hadn't expected this! Sadie couldn't see two feet in front of her face. A thunder clap came from above, as loud as she'd ever heard, and she thought it shook the earth. Lucky pulled back on the reins, but considering the sound of the thunder, he behaved well.

Sadie stood still and comforted Lucky, at the same time comforting herself. She looked to see if there was any shelter under which they could hide from the storm, but she couldn't see anything. Then she remembered seeing an old abandoned deer stand on the trail. Sadie was pretty sure it was only a few hundred yards from where they stood and set out to find it, leading the way for Lucky. The sky darkened even more, rain pelted them, and the wind howled. Sadie regretted going out on the trail alone now.

Another clap of thunder shook their ears, and Sadie looked back to ensure Lucky was okay. His eyes were wide, his nostrils flared, but he looked at Sadie as if he trusted her. Sadie continued forward, picking up the pace because she wasn't sure how long Lucky could keep his cool. Thinking she was on a familiar path, she turned back to Lucky to calm him and tell him they were almost there. By the time she faced forward again, it was too late. She plunged down a deep ravine<sup>3</sup> and into a stream at the bottom with a loud splash and a scream.

Lucky's instincts to flee from danger took over. Sadie had let the reins go during her fall. Lucky took off in a terrified gallop through the woods.

- [10] Sadie could not afford to feel pain or panic. She had to get a hold of herself quickly. She pulled herself out from the mud, climbed up the ravine, and called after Lucky.

It was useless. He was well out of her earshot, and the rain and thunder were too loud. Horses instinctively return to their homes, and Sadie hoped that Lucky was on his way back to the barn. She didn't blame him for being so scared and losing his confidence in her.

Sadie went for her cell phone to let somebody know what was happening. This was no longer about her stubbornness or pride, it was about making sure Lucky was safe. Of course, her cell phone was safely tucked into her saddle bag — on Lucky. She took a deep breath, told herself that was okay, and that everyone would find out soon enough what was going on when Lucky came galloping up the path to the barn alone. As a source of strength she said out loud, "I believe you're going to know what to do, Lucky," and trudged back towards the barn, paying very close attention to where she was going this time.

*Believing in Horses by Valerie Ormond. Copyright © 2012 by Valerie Ormond. Used with permission of author. All rights reserved.*

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3. a narrow, steep-sided valley

## Text-Dependent Questions

**Directions:** For the following questions, choose the best answer or respond in complete sentences.

1. PART A: In paragraph 9 and paragraph 11, what do the words “instincts” and “instinctively” suggest about why horses often return to their homes on their own?
  - A. They are taught to do it by their parents.
  - B. They learn to do it from skillful riders.
  - C. They automatically do it by nature.
  - D. They choose to do it when humans are at risk.
  
2. PART B: Which sentence from the passage best supports the answer in Part A?
  - A. “Sadie continued forward, picking up the pace because she wasn’t sure how long Lucky could keep his cool.” (Paragraph 8)
  - B. “Lucky looked at her as if to say ‘I told you it was the other way,’ and she couldn’t help but laugh.” (Paragraph 3)
  - C. “Sadie had let the reins go during her fall.” (Paragraph 9)
  - D. “Lucky took off in a terrified gallop through the woods.” (Paragraph 9)
  
3. PART A: Based on the passage, how are Sadie’s and Lucky’s points of view different?
  - A. Lucky prefers to stay near the barn, while Sadie enjoys adventures.
  - B. Lucky is intimidated by the storm, while Sadie more calmly focuses on practical needs.
  - C. Lucky enjoys the company of horses, while Sadie prefers to be with humans.
  - D. Lucky is used to the outdoors, while Sadie is just learning survival skills.
  
4. PART B: Which sentence from the passage best supports the answer in Part A?
  - A. “His eyes were wide, his nostrils flared, but he looked at Sadie as if he trusted her.” (Paragraph 8)
  - B. “Sadie continued forward, picking up the pace because she wasn’t sure how long Lucky could keep his cool.” (Paragraph 8)
  - C. “Horses instinctively return to their homes, and Sadie hoped that Lucky was on his way back to the barn.” (Paragraph 11)
  - D. “Of course, her cell phone was safely tucked into her saddle bag — on Lucky.” (Paragraph 12)
  
5. PART A: How does the storm affect Sadie’s behavior toward Lucky?
  - A. It causes her to observe Lucky closely.
  - B. It leads her to speak sternly to Lucky.
  - C. It makes her decide to walk next to Lucky.
  - D. It inspires her to give Lucky more freedom.

6. PART B: Which sentence from the passage best supports the answer in Part A?
- A. "It hadn't been a nice day, but she hadn't expected this!" (Paragraph 6)
  - B. "Another clap of thunder shook their ears, and Sadie looked back to ensure Lucky was okay." (Paragraph 8)
  - C. "Sadie had let the reins go during her fall." (Paragraph 9)
  - D. "She didn't blame him for being so scared and losing his confidence in her." (Paragraph 11)
7. PART A: Which phrase reflects the main theme of the passage?
- A. Loyalty is unappreciated until it is tested.
  - B. The beauty of nature should be respected.
  - C. Decisions can have unintended consequences.
  - D. Companionship is a universal necessity.
8. PART B: Which sentence from the passage best supports the answer in Part A?
- A. "Perhaps because there were no other riders in the barn, Sadie felt a tinge of loneliness, and was relieved that she had her best friend, Lucky, right there." (Paragraph 1)
  - B. "It seemed like it could be bright and sunny one minute, pouring rain the next, and then bright and sunny again." (Paragraph 6)
  - C. "Sadie regretted going out on the trail alone now." (Paragraph 7)
  - D. "Sadie could not afford to feel pain or panic." (Paragraph 10)
9. How do events in the plot shape the relationship of the characters in the passage?
- A. The years Sadie has lived in Maryland have led her to be a knowledgeable guide for Lucky.
  - B. The difficult events Sadie and Lucky have gone through together have caused them to drift apart.
  - C. The time Sadie and Lucky spent together helped them to understand each other.
  - D. The poor training Sadie has given Lucky has caused Lucky to distrust her.





• 2011

• 2011





**LESSON**  
**4-2**

# **Constant Rates of Change**

## **Reteach**

A **proportion** is an equation or statement that two rates are the same.

*In 1 hour of babysitting, Rajiv makes \$8.*

*He makes \$16 in 2 hours, and \$24 in 3 hours.*

The same information is shown in the table below.

<b>Time Worked (h)</b>	1	2	3
<b>Total Wage (\$)</b>	8	16	24

To see if this relationship is proportional, find out if the rate of change is constant. Express each rate of change shown in the table as a fraction.

$$\frac{8}{1} = 8$$

$$\frac{16}{2} = 8$$

$$\frac{24}{3} = 8$$

The rate of change for each column is the same. Because the rate of change is constant, the relationship is *proportional*.

You can express a proportional relationship by using the equation  $y = kx$ , where  $k$  represents the constant rate of change between  $x$  and  $y$ .

In this example:  $k = 8$ . Write the equation as  $y = 8x$ .

**The table shows the number of texts Terri received in certain periods of time.**

<b>Time (min)</b>	1	2	3	4
<b>Number of Texts</b>	3	6	9	12

1. Is the relationship between number of texts and time a proportional relationship? \_\_\_\_\_

2. For each column of the table, write a fraction and find  $k$ , the constant of proportionality.

\_\_\_\_\_

3. Express this relationship in the form of an equation: \_\_\_\_\_

4. What is the rate of change? \_\_\_\_\_

**Write the equation for each table. Let  $x$  be time or weight.**

5.

<b>Time (h)</b>	1	2	3	4
<b>Distance (mi)</b>	35	70	105	140

6.

<b>Weight (lb)</b>	3	4	5	6
<b>Cost (\$)</b>	21	28	35	42

