

ELA Anywhere Remote Resource

Unit 7C: Brain Science



Amplify ELA

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Brain Science

In this unit, you will learn about that most important part of you—your brain! You will read about some of the strange and shocking brain injuries that give us valuable information about the brain. You will collect information and develop your own models of the brain and how it works. Through your readings, your discussions, and your writing, you will explore the question: How do our brains make us who we are?

Materials

Your assigned text passages for these lessons can be accessed any of the following ways. Please follow your teacher's instructions on where to complete your reading.

- Print Student Edition
- Print Amplify ELA Grade 7 Anthology
- Digital eReader, accessible via computer or mobile device*

* **Reminder:** You can access this or any book in the Amplify Library by downloading it onto your device for offline reading.

Your teacher may also assign you Solos for some of these lessons. These Solo assignments can be completed any the following ways. Please follow your teacher's instructions on how to complete Solos.

- On paper in a printed version of the Solo activity
- On your mobile device via Mobile Solos
- On your computer using the digital Solo activity

The Student's Mindset

Take academic and social risks.

Write about one thing that grabs your attention.

Read carefully, observe closely, and share what you think.

Show your classmates the impact they are making.

Write with the reader in mind. Read with the writer in mind.



Rules for Writing Prompts

1. Write for 10 minutes.
2. Keep focused on your writing.
3. Try not to get distracted or take breaks.

Rules for Sharing

You'll be asked to share your writing after some activities in these at-home lessons. You can do this in person with someone in your home, or by calling a friend or classmate over the phone!

When you share, be sure to follow these rules:

1. If you are reading:
 - a. Read loudly and slowly.
 - b. When you're done, ask your listener to respond using the Response Starters.
2. If you are listening:
 - a. Wait until the reader has finished to respond.
 - b. Using the Response Starters, tell the reader which details made an impact on you.

Response Starters

1. I liked when you used the word _____ because _____.
2. You created a clear picture of _____ when you wrote _____.
3. When you wrote _____, it helped me see that _____.

Close Reading Practice

During close reading, be sure to read carefully, observe closely, and share what you think using the following practices:

- Identify words or phrases that you notice.
- Make a note that explains what you noticed.
- Discuss your observations with a classmate over the phone, or with someone at home.



Unit 7C, Sub-Unit 1

Phineas Gage: A Gruesome but True Story About Brain Science by John Fleischman



You may have to keep reminding yourself that this text is non-fiction. Phineas Gage was a real person. Enjoy his story—but don't forget to learn a lot about the brain from Phineas's medical case. Fleischman, the author, gives you a very close look at how the 19th-century doctors treat him with only incomplete knowledge and primitive tools. It's quite amazing what you can learn from other people's misunderstandings—and your own.



LESSON 1 OVERVIEW

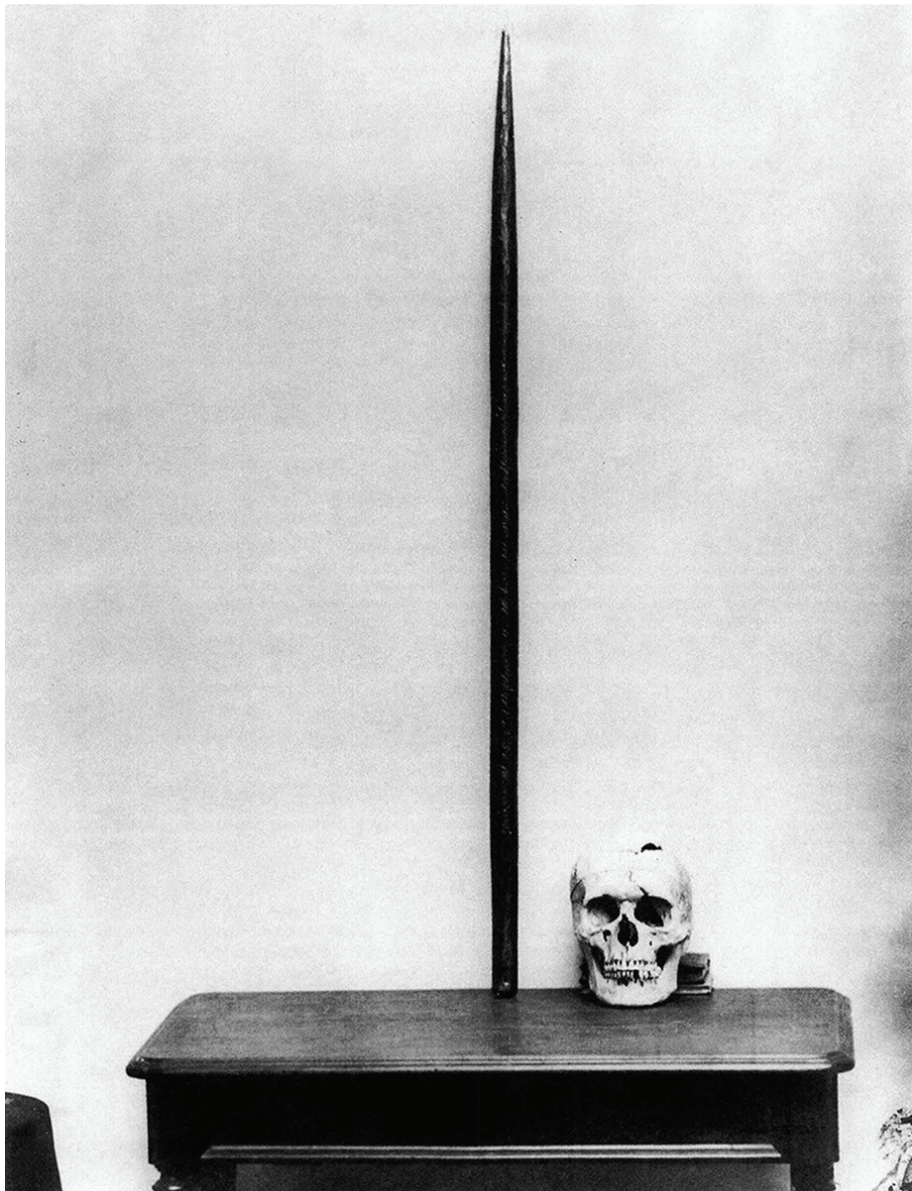
Welcome to the world of non-fiction. Do you prefer it with skulls and metal bars or with diagrams and charts?

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Close Reading Practice guidelines.

LESSON 1 Working with the Text



LESSON 1 Working with the Text

1. What do you think would happen if a piece of iron this big went through a person's head? Why do you think so?

You are starting a new text that is non-fiction—about what happened when that tamping iron went through that skull.

2. Why do you think the author chooses to focus us on this gruesome event in order to teach us about the brain?

Fleischman tries to do at least two things in this book:

1. Teach us about the brain.
2. Tell a good story.

We are going to start reading his text by paying attention to the story.

Read *Phineas Gage: A Gruesome but True Story About Brain Science* "'Horrible Accident' in Vermont," paragraphs 1–9.

3. According to the author, Phineas's character will change after his accident. What does he mean by this? Circle your choice.
 - a. He will develop a lung condition.
 - b. He will behave differently.
 - c. He will walk with a limp.
 - d. He will lose his memory.
4. Phineas worked for: (Circle your choice)
 - a. an oil company.
 - b. a road developer.
 - c. a railroad builder.
 - d. an electric company.

LESSON 1 Working with the Text

5. What was the tamping iron used for? Circle your choice.
- a. It loosened the sand.
 - b. It lifted things.
 - c. It packed down loose powder.
 - d. It pried things apart.



6. Which object do you think is closest in length to Phineas's tamping iron? Circle your choice.
- a. Javelin
 - b. Baseball Bat
 - c. Crowbar

LESSON 1 Close Read

Reread the following passages from *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont.”

- A. There is no argument about what happens next. Something or someone distracts Phineas. Does he hear his name called? Does he spot someone goofing off? Whatever the reason, Phineas turns his head to glance over his right shoulder. The fat end of his tamping iron slips down into the hole and strikes the granite. A spark flies onto the exposed blasting powder. Blam! The drill hole acts as a gun barrel. Instead of a bullet, it fires Phineas’s rod straight upward. The iron shrieks through the air and comes down with a loud clang about thirty feet away. (“‘Horrible Accident’ in Vermont” 8)
- B. The most unlucky/lucky moment in the life of Phineas Gage is only a minute or two away. It’s almost four-thirty in the afternoon on September 13, 1848. (“‘Horrible Accident’ in Vermont” 1)
- C. His task is to blast the solid rock into pieces small enough for his crew to dig loose with hand tools and haul away in ox carts. The first step is to drill a hole in the bedrock at exactly the right angle and depth, or the explosion will be wasted. All day, Phineas must keep an eye on his drillers to make sure they stay ahead. All day, Phineas must keep an eye on his diggers to make sure they keep up. All the time between, Phineas and his assistant are working with touchy explosives. (“‘Horrible Accident’ in Vermont” 5)
- D. The biggest question is the simplest one and the hardest to answer: Was Phineas lucky or unlucky? Once you hear his story, you can decide for yourself. But right now, Phineas is working on the railroad and his time has nearly come. (“‘Horrible Accident’ in Vermont” 3)
- E. This is what happens. Imagine you are inside Phineas’s head, watching in extreme slow motion: See the pointy end of the rod enter under his left cheekbone, pass behind his left eye, through the front of his brain, and out the middle of his forehead just above the hairline. It takes a fraction of a fraction of a second for the iron rod to pass from cheekbone to forehead, through and through. (“‘Horrible Accident’ in Vermont” 9)

1. Which of these passages really grabs you as a reader? Circle your choice.
- a. There is no argument...
 - b. The most unlucky/lucky...
 - c. His task is to blast...
 - d. The biggest question...
 - e. This is what happens...

LESSON 1 Close Read

- * 2. Describe what you notice most about this passage and why you chose it. Use textual evidence to explain why it is so engaging.

- 3. Review your answer to the previous question. Notice which words and phrases you came up with to describe the text. Write these words or phrases below.

LESSON 2 OVERVIEW

Many people find *Phineas Gage* by John Fleischman hard to resist. Can you explain why?

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Rules for Sharing, Response Starters, and Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 1 Solo.

LESSON 2 Working with the Text

Reread *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraph 8.

1. List the words that grab your attention.

2. Finish this sentence:

This passage grabs my attention because of its _____. (Circle your choice)

- a. teasing
- b. suspense
- c. shock
- d. showing, not telling

3. Briefly explain your choice. Why does this passage make you think of that technique?

Reread *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraph 1, sentences 1 and 2.

4. List the words that grab your attention.

LESSON 2 Working with the Text

5. Finish this sentence:

This passage grabs my attention because of its _____. (Circle your choice)

- a. teasing
- b. suspense
- c. shock
- d. showing, not telling

6. Briefly explain your choice. Why does this passage make you think of that technique?

Reread *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraph 5.

7. List the words that grab your attention.

8. Finish this sentence:

This passage grabs my attention because of its _____. (Circle your choice)

- a. teasing
- b. suspense
- c. shock
- d. showing, not telling

9. Briefly explain your choice. Why does this passage make you think of that technique?

Reread *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraph 3, sentences 4–6.

10. List the words that grab your attention.

LESSON 2 Working with the Text

11. Finish this sentence:

This passage grabs my attention because of its _____. (Circle your choice)

- a. teasing
- b. suspense
- c. shock
- d. showing, not telling

12. Briefly explain your choice. Why does this passage make you think of that technique?

Reread *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraph 9.

13. List the words that grab your attention.

14. Finish this sentence:

This passage grabs my attention because of its _____. (Circle your choice)

- a. teasing
- b. suspense
- c. shock
- d. showing, not telling

15. Briefly explain your choice. Why does this passage make you think of that technique?

LESSON 2 Writing Prompt

Choose one of the passages that you looked at in the preceding activity. Describe and explain exactly what Fleischman does in this passage with his writing to grab you.

When you've finished, share your writing with a classmate, friend, or family member using the Rules for Sharing. Ask them to use the Response Starters to give you feedback.

Rules for Writing Prompts

- 1. Write for 10 minutes
- 2. Focus on one idea
- 3. Use and describe evidence to support your idea

LESSON 3 OVERVIEW

Now it is time to start getting the facts straight. Fleischman tells quite a story, but can you figure out how this incredible accident actually happened?

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Close Reading Practice Guidelines.
3. Complete the Sub-Unit 1, Lesson 2 Solo.

LESSON 3 Working with the Text

1. Without looking at your text, order the steps of the blasting process, using numbers 1–7 (1 representing the first step, 7 representing the last).

| Order | Steps |
|-------|--------------------------------------------------------|
| _____ | Press the fuse down into the powder. |
| _____ | Shout a warning. |
| _____ | Tamp the sand. |
| _____ | Plug the hole with loose sand. |
| _____ | Light the fuse and run. |
| _____ | Fill the hole with coarse-grained gunpowder. |
| _____ | Drill a hole in the rock at the right angle and depth. |

Read *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraphs 7 and 8.

2. Did you order the blasting process steps correctly in question 1? If not, which steps were out of order?

3. Which step of the process went wrong and caused Phineas’s accident?

LESSON 3 Working with the Text

- 4. Find the textual evidence for your answer, write it below, and explain how it supports your answer.

When you've finished, share your answer with a classmate, friend, or family member. Explain to them why you think your answer is correct. If sharing with a classmate, listen carefully to their answer, asking them questions about their reasoning.

Acknowledge new information your classmate shares, and think about whether these points cause you to change your own views.

- 5. If you changed your mind during your discussion, explain what you heard or read that made you change your mind.

LESSON 3 Close Read

Read the story below.

A Suspenseful but True Story About Candy and Money

Seventh-grade girls were the cruelest! she thought, completely aware that she herself was one of them. Still, she would never spread lies like the ones she'd heard that afternoon. Tatiana wasn't bossy and self-centered; she just was usually right. And how dare they say she was mean to Julio?

The situation required some serious candy, so Tatiana texted Julio, the boy who'd lived in the house behind hers since they were both seven. They'd always been best friends and faced the world together. And now, some people were trying to break their bond.

Julio knew the emergency-candy routine, but after ten minutes, he still hadn't responded or appeared at Tatiana's screen door. Worried the rumors and lies had spread to her sensitive bestie, Tatiana walked alone to the corner store for some processed sugar.

She grabbed her favorite bag of mixed goodies and brought it to the counter; she could feel her shoulders relaxing and her heart-rate slowing, but she couldn't stop thinking of Julio—and worrying.

The guy behind the counter said, "That'll be three dollars and twenty-nine cents."

Tatiana dug in her pocket, pulled out two dollar bills, and then checked all of her other pockets. Predictably, her face blushed, her shoulders crept back up to her ears, and she burst into tears.

As she fell to the floor, feeling friendless and candy-less, Tatiana heard a familiar voice above her. "Whoa, whoa," Julio was saying with a gentle smile, as he eyed the two dollars and bag of candy. "Let me see if I can help." Scraping together broken pencils and gum wrappers from the bottom of his backpack, Julio also found five quarters, a dime, and two pennies. Neither of them were very good at math but Tatiana hugged him anyway.

1. Did Tatiana get her candy? Circle your choice.
 - a. Yes
 - b. No

Some people may get this answer right, but it's easy to get wrong. Maybe people make mistakes because they're rushing.

2. What are some other reasons someone might get this answer wrong?

3. What might be another way to present this math problem so that more people would get it right?

Like the dramatic version of the math problem, Fleischman writes the story, sometimes, in a very dramatic way, to engage you in learning about something else. In his case, brain science.

But often, his storytelling distracts from the information we are trying to learn. This is true of many popular science texts.

In this unit, you'll learn how to get all of the science while you enjoy the story.

LESSON 4 OVERVIEW

If a tamping iron goes in one side of the brain and out the other, we can only assume it left a pretty big hole behind. Why might Phineas want a hole in his head?

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Complete the Sub-Unit 1, Lesson 3 Solo.

LESSON 4 Working with the Text

Read *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraphs 16–21.

According to Fleischman, Phineas has an open brain injury, which is both good and bad for his “battered brain” (19).

1. Which of the following is a *disadvantage* of an open brain injury? Circle your choice.
 - a. His brain won’t stop bleeding.
 - b. His brain has room to swell and isn’t crushed up against his skull.
 - c. His brain is exposed to infection.
 - d. His brain is protected from bacteria by the blood-brain barrier.
 - e. His brain has an opening to drain off the “foul-smelling liquid” (19).
2. Find the evidence in the text that supports your answer. Write it below and explain how it supports your answer.

3. Which of the following is an *advantage* of an open brain injury? Circle your choice.
 - a. His brain won’t stop bleeding.
 - b. His brain has room to swell and isn’t crushed up against his skull.
 - c. His brain is exposed to infection.
 - d. His brain is protected from bacteria by the blood-brain barrier.
 - e. His brain has an opening to drain off the “foul-smelling liquid” (19).

LESSON 4 Working with the Text

- 4. Find the evidence in the text that supports your answer. Write it below and explain how it supports your answer.

- 5. When you've finished, share your answers to questions 1 and 3 with a classmate, friend, or family member. Explain to them why you think your answers are correct. If sharing with a classmate, listen carefully to their answers, asking them questions about their reasoning.

Acknowledge new information your classmate shares, and think about whether these points cause you to change your own views.

- 6. If you changed your mind during your discussion, explain what you heard or read that made you change your mind.

- 7. Select one of the answers you didn't choose from question 1. Write the letter of the answer you chose below, and explain why you believe it's incorrect. Use evidence from the text to support your explanation.

- 8. Select one of the answers you didn't choose from question 3. Write the letter of the answer you chose below, and explain why you believe it's incorrect. Use evidence from the text to support your explanation.

LESSON 5 OVERVIEW

Everyone knows that you should avoid bacteria, right? Especially if you have an open wound. But exactly how and why is the key. And, in 1848, poor Phineas depends on doctors whose knowledge of how it all works is a little shaky.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 4 Solo.

LESSON 5 Working with the Text

Read *Phineas Gage: A Gruesome but True Story About Brain Science* "'Horrible Accident' in Vermont," paragraphs 20–27.

1. Why was it dangerous for Phineas if his wound became infected? Circle your choice.

- a. "Animalcules," or microorganisms, are always deadly to humans.
- b. Some types of microorganisms are dangerous bacteria.
- c. The human body has no way to protect itself against microorganisms.
- d. Bacteria overpower the immune system by releasing toxic chemicals.
- e. Single-celled bacteria float in the air on dust particles and grow on unwashed surgical equipment.

2. Find the evidence in the text that supports your answer. Write it below and explain how it supports your answer.

3. When you've finished, share your answer with a classmate, friend, or family member. Explain to them why you think your answer is correct. If sharing with a classmate, listen carefully to their answer, asking them questions about their reasoning.

LESSON 5 Working with the Text

Acknowledge new information your classmate shares, and think about whether these points cause you to change your own views.

- 4. If you changed your mind during your discussion, explain what you heard or read that made you change your mind.

- 5. Select one of the answers you didn't choose from question 1. Write the letter of the answer you chose below, and explain why you believe it's incorrect. Use evidence from the text to support your explanation.

LESSON 5 Close Read

Reference *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraphs 20–27.

- *1. Why do you wash your hands before eating? Use at least one piece of information from today’s reading to support your answer.

LESSON 6 OVERVIEW

Hopefully, you have been reading very carefully and listening to your partners. Today, you are going to have to bring it all together and explain how Phineas survived this terrible accident.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Rules for Sharing, Response Starters, and Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 5 Solo.

LESSON 6 Working with the Text

Read *Phineas Gage: A Gruesome but True Story About Brain Science* "'Horrible Accident' in Vermont," paragraphs 15–26.

1. True or false: At the time of Phineas's accident (1848), doctors had this medical knowledge: Bacteria cause infection. (Circle your choice)
 - a. True
 - b. False
2. Find the evidence in the text that supports your answer. Write it below and explain how it supports your answer.

3. True or false: At the time of Phineas's accident (1848), doctors had this medical knowledge: Antibiotics are prescribed to cure infections. (Circle your choice)
 - a. True
 - b. False

LESSON 6 Working with the Text

- 4. Find the evidence in the text that supports your answer. Write it below and explain how it supports your answer.

- 5. When you've finished, share your answers to questions 1 and 3 with a classmate, friend, or family member. Explain to them why you think your answers are correct. If sharing with a classmate, listen carefully to their answers, asking them questions about their reasoning.

Acknowledge new information your classmate shares, and think about whether these points cause you to change your own views.

- 6. If you changed your mind during your discussion, explain what you heard or read that made you change your mind.

- 7. For question 1, explain why you believe the answer you didn't choose is incorrect. Use evidence from the text to support your explanation.

LESSON 6 Working with the Text

- 8. For question 3, explain why you believe the answer you didn't choose is incorrect. Use evidence from the text to support your explanation.



- 9. Why do you think doctors in 1848 wore street clothes instead of the special uniforms we see doctors wearing today?

LESSON 6 Writing Prompt

Think about a place in the text that shows that Dr. Harlow didn't understand something about infection.

Put a check mark next to the sentence if...

- you would go to a doctor who didn't know *that*.
- you think it's amazing that Phineas didn't die when the tamping iron went through his head.
- you think it's more amazing that he didn't die when Dr. Harlow treated him with his dirty hands.
- you can remember some of the advantages or disadvantages of an open brain injury.

Rules for Writing Prompts

1. Write for 10 minutes
2. Focus on one idea
3. Use and describe evidence to support your idea

Fleischman claims, "Phineas should have been dead long before this" (17), and presents reasons for this claim. Argue for or against Fleischman's claim, using textual evidence.

When you've finished, share your writing with a classmate, friend, or family member using the Rules for Sharing. Ask them to use the Response Starters to give you feedback.

LESSON 7 OVERVIEW

Phineas’s doctor must have been pretty amazed that his patient walked away from this accident, considering the picture you saw of Phineas’s skull right next to that tamping iron. So why does it matter if Phineas had “fully” recovered or not?

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Rules for Sharing, Response Starters, and Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 6 Solo.

LESSON 7 Working with the Text

Read *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraphs 27–34 (paragraphs 27–35 in Amplify ELA Grade 7 Anthology).

1. What evidence did Dr. Harlow use to conclude that Phineas had fully recovered from his injury? Circle your choice.
 - a. His fever breaks and his wound had started to heal.
 - b. He wants to go home to his mother’s house.
 - c. He is able to feed and dress himself.
 - d. He understands the value of money.
2. Find the evidence in the text that supports your answer. Write it below and explain how it supports your answer.

3. When you’ve finished, share your answer with a classmate, friend, or family member. Explain to them why you think your answer is correct. If sharing with a classmate, listen carefully to their answer, asking them questions about their reasoning.

Acknowledge new information your classmate shares, and think about whether these points cause you to change your own views.

LESSON 7 Working with the Text

- 4. If you changed your mind during your discussion, explain what you heard or read that made you change your mind.

- 5. Select one of the answers you didn't choose from question 1. Write the letter of the answer you chose below, and explain why you believe it's incorrect. Use evidence from the text to support your explanation.

Unit 7C, Sub-Unit 1: *Phineas Gage: A Gruesome but True Story About Brain Science*

LESSON 7 Close Read

Reference *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraphs 27–34 (paragraphs 27–35 in Amplify ELA Grade 7 Anthology).

Throughout this passage, Dr. Harlow draws different conclusions about Phineas as he observes him and tends to his injury.

Complete the activity below, drawing a line to connect each conclusion to the quotes from the text that support it. (Some conclusions are supported by more than one piece of evidence.)

Dr. Harlow’s Conclusions

Phineas’s wound is not healing properly.

Lancing the wound has helped the wound heal.

Ten weeks after the accident, Phineas has fully recovered from his wounds.

Phineas’s bodily “humors” are out of balance.

Quotes from the Text

“Phineas is feverish, losing his appetite, and sinking fast.” (27)

“His head still heavily bandaged, Phineas is roaming about Cavendish in the rain with no coat and thin shoes. He is eating unwisely, refusing nursing advice, and ignoring doctor’s orders.” (28)

“Fourteen days after the accident, Phineas develops a huge abscess under the skin just above his eyes.” (27)

“Phineas says he wants to go home to his mother’s house in Lebanon, New Hampshire, twenty miles away. He intends to walk.” (28)

“The fever abates. His scalp begins to heal.” (27)

“Phineas is very weak, but he can walk short distances.” (29)

“He can count, feed and dress himself, and sing. He can speak clearly and make sense of what he hears.” (29)

LESSON 8 OVERVIEW

Today is a Flex Day. Your teacher decides what happens today based on your work to date. The way in which your teacher helps you today depends on what he or she has seen in your work.

Prep

Before you begin this lesson:

- 1.** Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
- 2.** Complete the Sub-Unit 1, Lesson 7 Solo.

LESSON 8 Flex Day

This is a Flex Day. Your teacher will direct you to respond to a Writing Prompt, complete a Revision Assignment, do a grammar exercise, and/or reread some part of the text.

LESSON 9 OVERVIEW

This lesson will help you picture the structure of the brain—and also give you a chance to review any of the science so far that is not completely clear to you.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 8 Solo.

LESSON 9 Working with the Text

Read *Phineas Gage: A Gruesome but True Story About Brain Science* “What We Thought About How We Thought,” paragraphs 10–13.

1. Describe the function of each of the following four parts of the brain:

- Brain Stem _____

- Cerebellum _____

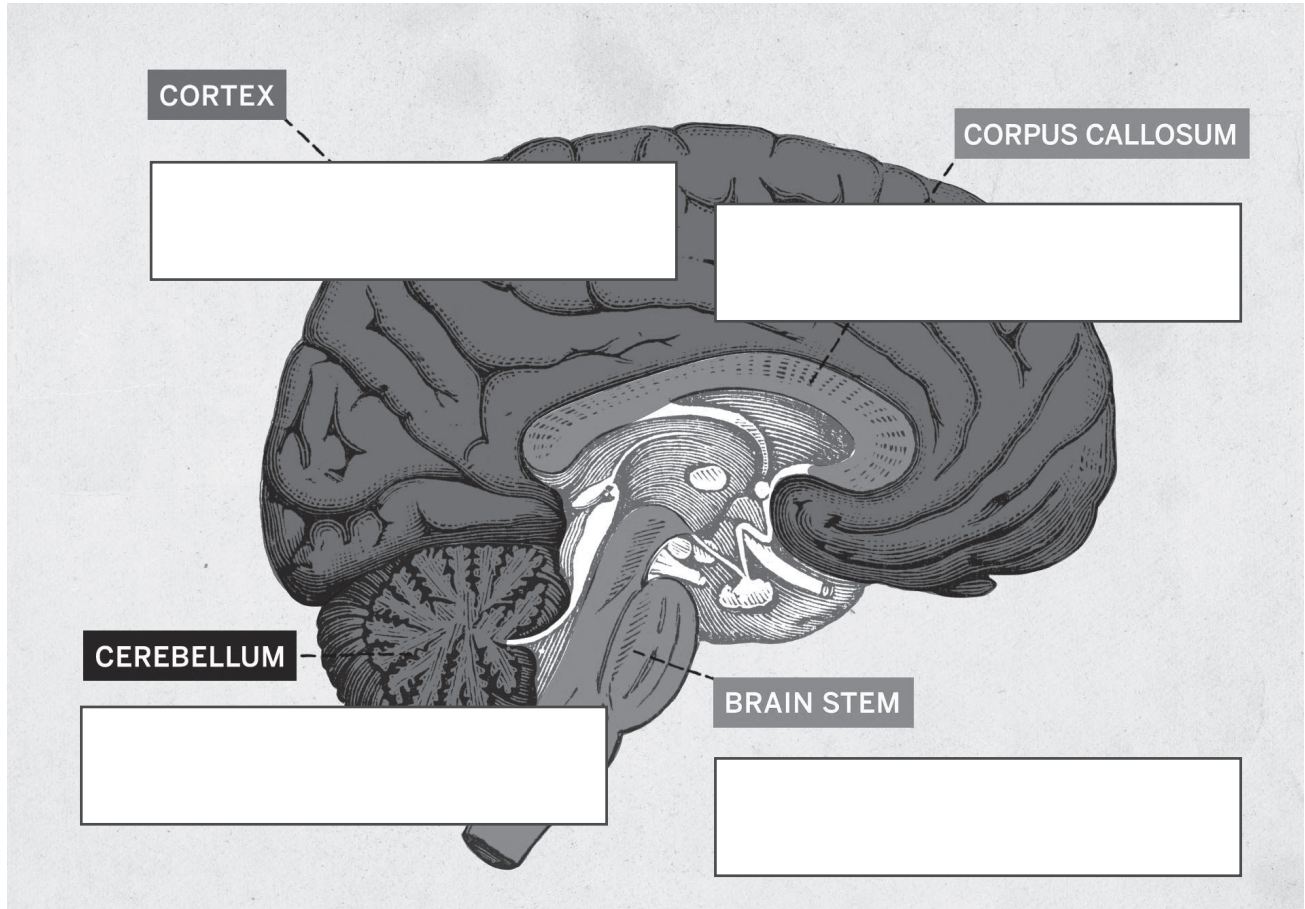
- Corpus Callosum _____

- Cortex _____

Now you're going to summarize your answers so they're small enough to fit into the spaces on a brain map!

LESSON 9 Working with the Text

2. In each blank space on the brain map below, briefly note the function of that part of the brain.



3. Which TWO answer choices describe the purpose of labeling the diagram after reading and answering questions about the text? Circle two choices.

- a. To help visualize where the different parts of the brain are
- b. To help connect the function of each part of the brain to its location
- c. To help explain the connections between the different parts of the brain
- d. To help trace how scientists' understanding of the different parts of the brain has evolved over time

LESSON 9 Close Read

Read “**The Cerebral Cortex,**” paragraph 1.

1. Describe the function of each of the following four parts of the cortex:

• Frontal Lobe _____

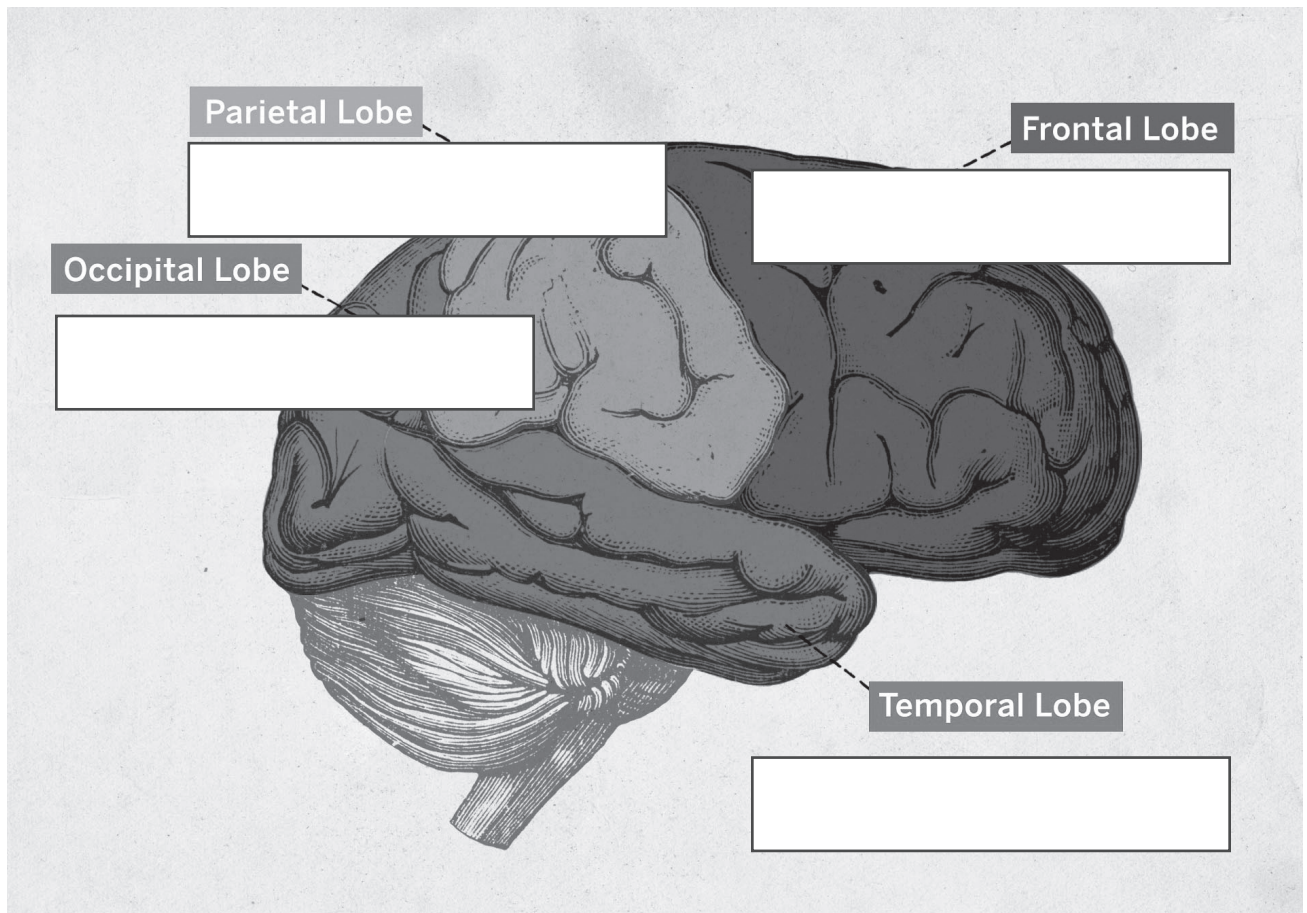
• Parietal Lobe _____

• Occipital Lobe _____

• Temporal Lobe _____

Now you’re going to summarize your answers to fit into the spaces on the brain map below.

2. In each blank space on the brain map below, briefly note the function of that part of the cortex.



LESSON 9 Wrap-Up

See if you can answer the following questions from memory, without referencing your text.

1. True or false: In Phineas's time, doctors washed their hands before treating patients. (Circle your choice)
 - a. True
 - b. False
2. Which part of the brain controls the breathing and the heartbeat? Circle your choice.
 - a. Brain stem
 - b. Frontal lobe
 - c. Cortex
 - d. Frontal cortex
 - e. Occipital lobe
3. True or false: In 1848, doctors thought they knew how the brain worked. (Circle your choice)
 - a. True
 - b. False
4. How many pounds does the average brain weigh? Circle your choice.
 - a. .5 lb.
 - b. 2 lbs.
 - c. 3 lbs.
 - d. 6 lbs.
 - e. 12 lbs.
5. True or false: An open brain injury is always more dangerous than a closed brain injury. (Circle your choice)
 - a. True
 - b. False
6. You wouldn't be human without this part of your brain. Circle your choice.
 - a. Brain stem
 - b. Corpus callosum
 - c. Cerebellum
 - d. Cortex

LESSON 9 Wrap-Up

7. What lobe is responsible for our personality, which includes our impulse control, social behavior, reasoning, and planning? Circle your choice.
- a. Parietal lobe
 - b. Frontal lobe
 - c. Occipital lobe
 - d. Temporal lobe

LESSON 10 OVERVIEW

Now *you* be the doctor. Use your diagrams and information from the text to explain exactly what happened to poor Phineas’s brain.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Rules for Sharing, Response Starters, and Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 9 Solo.

LESSON 10 Working with the Text

Reread *Phineas Gage: A Gruesome but True Story About Brain Science* “‘Horrible Accident’ in Vermont,” paragraphs 10–14 and 29–33 (paragraphs 29–34 in Amplify ELA Grade 7 Anthology). As you read, notice the ways in which Phineas is the same and how he is different.

1. Find two or three pieces of evidence from the text that demonstrate how Phineas was the same. Write them below, then describe the behavior in each piece of evidence.

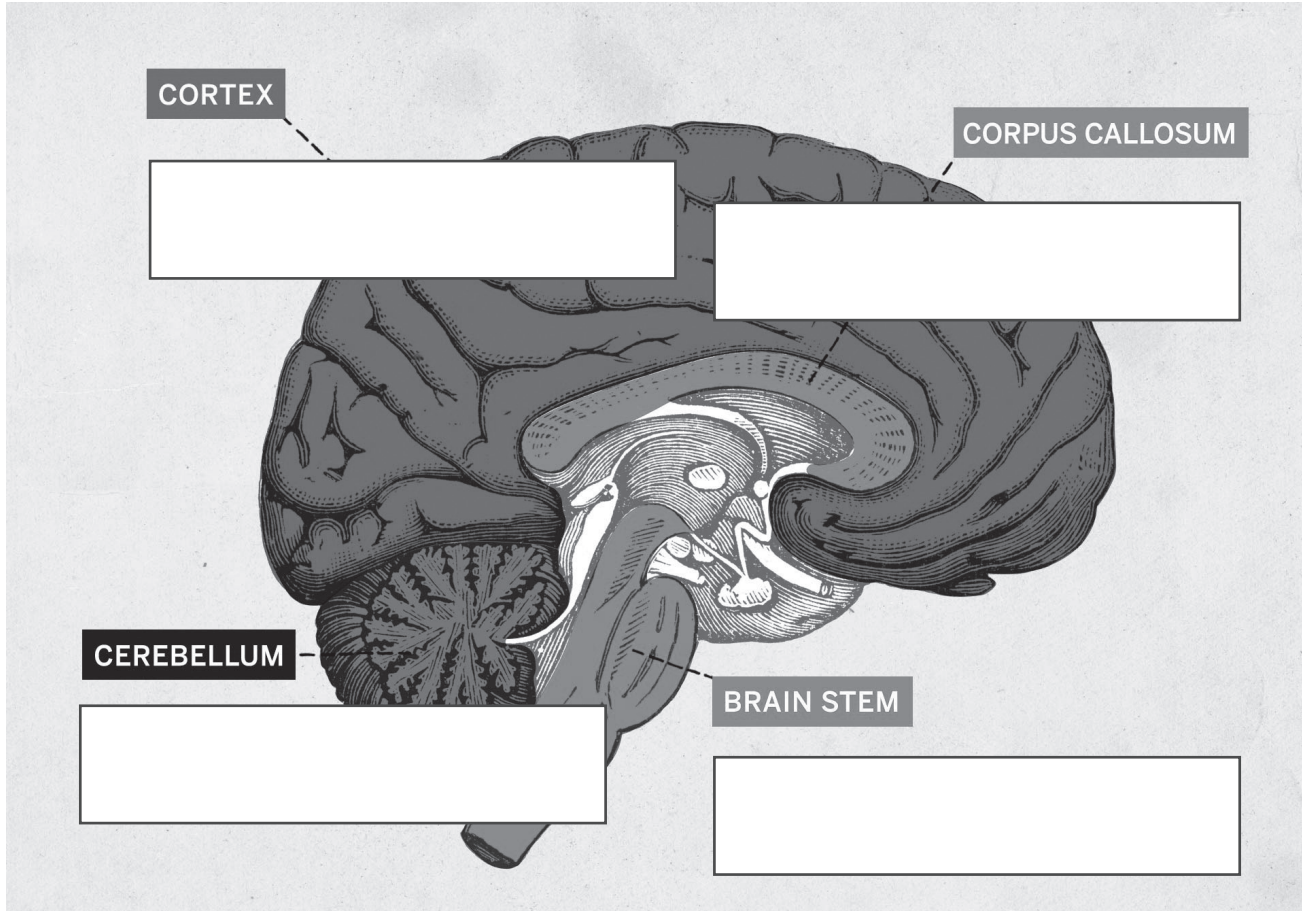
LESSON 10 Working with the Text

- 2. Find two or three pieces of evidence from the text that demonstrate how Phineas was different. Write them below, then describe the behavior in each piece of evidence.

- 3. For each of the differences you listed in question 2, write down which part of the brain controls these functions.

LESSON 10 Working with the Text

4. In the brain map below, fill in the blank spaces that correspond to the parts you listed in question 3, explaining why you decided this part of Phineas's brain was damaged.



LESSON 10 Writing Prompt

Put a check mark next to the sentence if...

- you can think of differences between how Phineas acted before and after his injury.
- you can remember which parts of the cortex control which functions.
- you can figure out which part of Phineas’s cortex was injured.
- you can think of evidence from the text that shows which part of Phineas’s brain was injured.

Rules for Writing Prompts

1. Write for 10 minutes
2. Focus on one idea
3. Use and describe evidence to support your idea

Identify which area of Phineas’s brain was injured and support your claim with evidence from the text about his behavior and from your knowledge of the brain’s structure.

When you’ve finished, share your writing with a classmate, friend, or family member using the Rules for Sharing. Ask them to use the Response Starters to give you feedback.

Unit 7C, Sub-Unit 1: *Phineas Gage: A Gruesome but True Story About Brain Science*

LESSON 11 OVERVIEW

You have seen a few pictures of the ways in which people visualize how our brains look. Today, it is your turn to help bring the vision of the 19th century doctors to life—as if they were looking at your brain.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 10 Solo.

LESSON 11 Working with the Text

Read *Phineas Gage: A Gruesome but True Story About Brain Science* “What We Thought About How We Thought,” paragraphs 17–28 (paragraphs 14–25 in Amplify ELA Grade 7 Anthology). Focus on what the Whole Brainers and Phrenologists believed about the brain.

1. Which doctors belong to which group? Label each of the following as a Whole Brainer or a Localizer/Phrenologist.

- Dr. Gall _____
- Dr. Bigelow _____
- Dr. Harlow _____
- Dr. Sizer _____

2. Summarize the beliefs of the Whole Brainers.

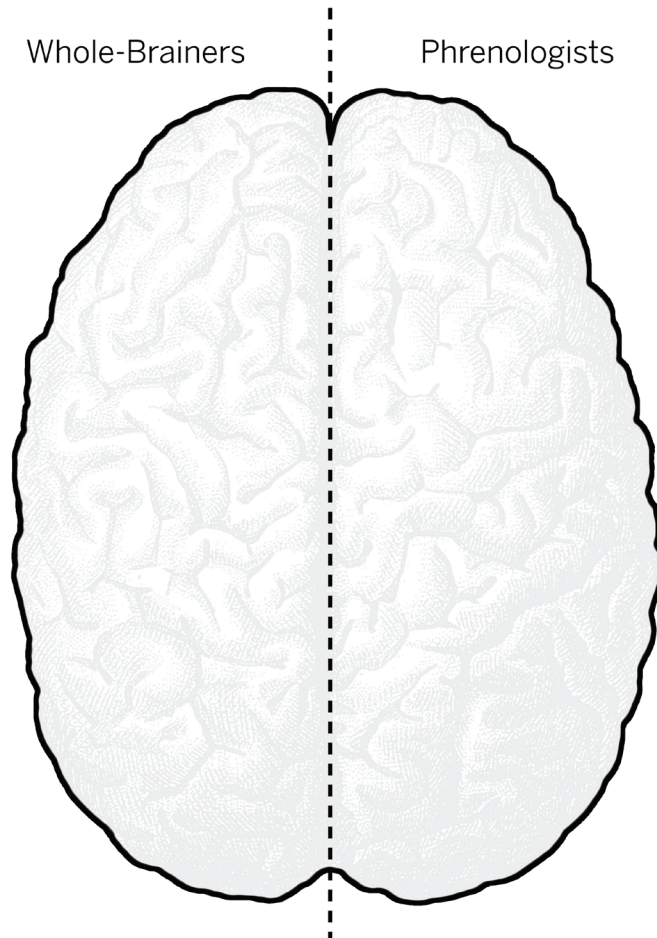
3. Summarize the beliefs of the Localizers/Phrenologists.

LESSON 11 Working with the Text

- 4. Make a list of your own character traits that show your personality, your strengths, and your weaknesses. Add any traits you think someone looking at your brain should be able to see to know what kind of person you are. Include at least seven character traits.

How would the Localizers/Phrenologists picture the structure of your brain? How would the Whole Brainers picture the structure of your brain? You're going to visualize two versions of your brain: one for a Localizer/Phrenologist, and one for a Whole Brainer.

- 5. Fill out the brain diagram below, showing how the Whole Brainers would represent your character traits on the left side, and how the Localizers/Phrenologists would represent your character traits on the right side.



LESSON 11 Working with the Text

- 6. Find one piece of evidence from the text that could prove the Phrenologists' theory. Explain how this piece of evidence supports the theory.

- 7. Find one piece of evidence from the text that could prove the Whole Brainers' theory. Explain how this piece of evidence supports the theory.

- 8. Which theory seems like a more convincing explanation of how the brain works? Explain your answer.

LESSON 11 Working with the Text

Both Phrenologists and Whole Brainers saw Phineas’s survival as proof of their theory: “Yet here is Phineas alive in Boston, walking, talking, and taking care of himself.” (23)

9. Which of the following quotes BEST explains how this piece of evidence supports the Phrenologists’ theory?
- a. “If one part of the brain is injured, then the functions or thoughts that came from there will flow to another part.” (18)
 - b. “The Phrenologists reason that if you have a strong organ, it will be big and project from your skull as a bump.” (22)
 - c. “Phineas would surely have died if specific areas of the brain were vital to specific functions. After all, the tamping iron carried away pieces of Phineas’s brain. (23)
 - d. “The tamping iron has not killed him because the damage is limited to specific organs that are not critical to life.” (24)
10. Which of the following quotes BEST explains how this piece of evidence supports the Whole Brainers’ theory?
- a. “If one part of the brain is injured, then the functions or thoughts that came from there will flow to another part.” (18)
 - b. “The Phrenologists reason that if you have a strong organ, it will be big and project from your skull as a bump.” (22)
 - c. “Phineas would surely have died if specific areas of the brain were vital to specific functions. After all, the tamping iron carried away pieces of Phineas’s brain. (23)
 - d. “The tamping iron has not killed him because the damage is limited to specific organs that are not critical to life.” (24)
11. How is it that these two groups were able to interpret the evidence so differently?

Reread Dr. Harlow’s notes from Chapter 1 (in bold) on the changes in Phineas’s behavior, and the quotes from Dr. Sizer’s 1851 report to the American Phrenological Journal (in bold).

LESSON 11 Close Read

Excerpt from Chapter 1: "Horrible Accident" in Vermont"

Dr. Harlow, who is keeping confidential notes on Phineas, sadly writes, **"His contractors, who regarded him as the most efficient and capable foreman in their employ previous to his injury, considered the change in his mind so marked that they could not give him his place again."** Phineas's old friends also wash their hands of him. Dr. Harlow writes: **"He is fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint or advice when it conflicts with his desires."** Phineas comes up with all sorts of new plans, the doctor writes, but they are no sooner announced than he drops them. Phineas is like a small child who says he is running away from home after lunch and then comes up with a new idea over his sandwich. Dr. Harlow writes, **"A child in his intellectual capacities and manifestations, he has the animal passions of a strong man."** A doctor is bound by his oath not to reveal the details of a patient's condition without permission, so Dr. Harlow will keep his observations to himself for twenty years. (32–33)

Excerpt from Chapter 2: "What We Thought About How We Thought"

Yet the Localizers/Phrenologists don't have all the facts. In 1850, when Phineas comes to Boston, Dr. Harlow feels he must keep the details of his patient's personality problems confidential, but he does tell some of the truth to Dr. Nelson Sizer. Dr. Sizer is a big man in phrenology and lectures on it all over New England. Dr. Harlow leaks the information to Dr. Sizer that the "completely recovered" Phineas is not the old Phineas. Dr. Sizer tries to disguise the source of his report to the American Phrenological Journal in 1851, writing, **"We have been informed by the best authority that after the man recovered, and while recovering, he was grossly profane, coarse, and vulgar, to such a degree that his society was intolerable to decent people."**

Dr. Sizer's report is wonderful news for the Localizers/Phrenologists. As Dr. Sizer explains, **"If we remember correctly, the iron passed through the regions of the organs of BENEVOLENCE and VENERATION, which left these organs without influence in his character, hence his profanity, and want of respect and kindness."**(24–25)

- * 1. Compare how Dr. Harlow and Dr. Sizer described Phineas's behavior. Why do you think the doctors used different words to explain Phineas's behavior? Consider the audience for each doctor's description.

LESSON 12 OVERVIEW

Today is a Flex Day. Your teacher decides what happens today based on your work to date. The way in which your teacher helps you today depends on what he or she has seen in your work.

Prep

Before you begin this lesson:

- 1.** Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
- 2.** Complete the Sub-Unit 1, Lesson 11 Solo.

LESSON 12 Working with the Text

This is a Flex Day. Your teacher will direct you to respond to a Writing Prompt, complete a Revision Assignment, do a grammar exercise, and/or reread some part of the text.

Unit 7C, Sub-Unit 2

“Demystifying the Adolescent Brain” by Laurence Steinberg



Here, you'll find yourself a science article with no dramatic story or interesting characters to help wash it down. The author, Laurence Steinberg, explains how the adolescent brain develops—and why it's different from the brain at other stages of life. You have a lot of background knowledge on this topic, of course. Be careful that you don't mix up what you *think* you already know with the new things this author is trying to teach you.



Unit 7C, Sub-Unit 2: “Demystifying the Adolescent Brain” by Laurence Steinberg

LESSON 1 OVERVIEW

Story time is over. We think you are ready. This text will challenge you to read and understand a difficult science article by an author who doesn't employ tricks to engage you. This is science reading without a net (well, we'll step in and help you a little, here and there).

Prep

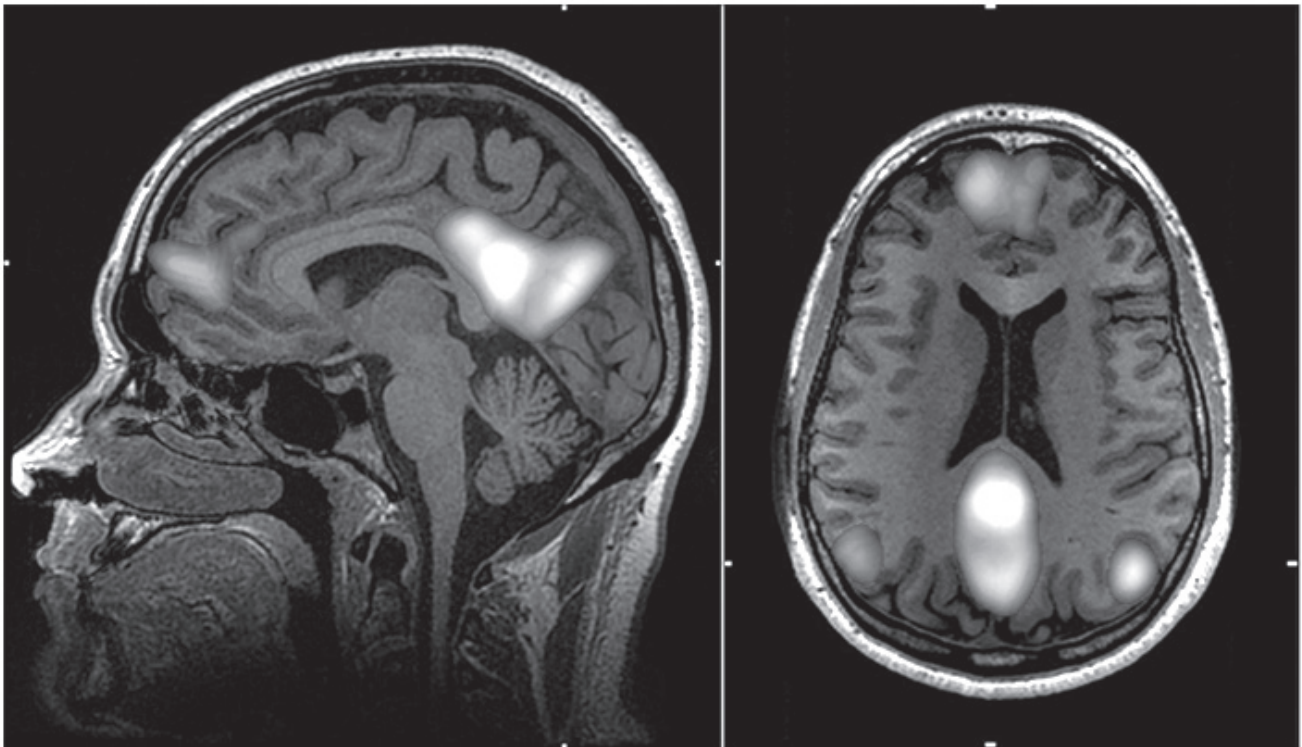
Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Close Reading Practice guidelines.
3. Complete the Sub-Unit 1, Lesson 12 Solo.

LESSON 1 Working with the Text

You've seen what Dr. Harlow knew about the brain in the late 1800s from just looking at it from the outside and observing patients.

Today, we have new tools that let us look into the brain and see it as it is working. One new tool is the fMRI, a picture of the brain that examines patterns of brain activity while a person is performing a task.



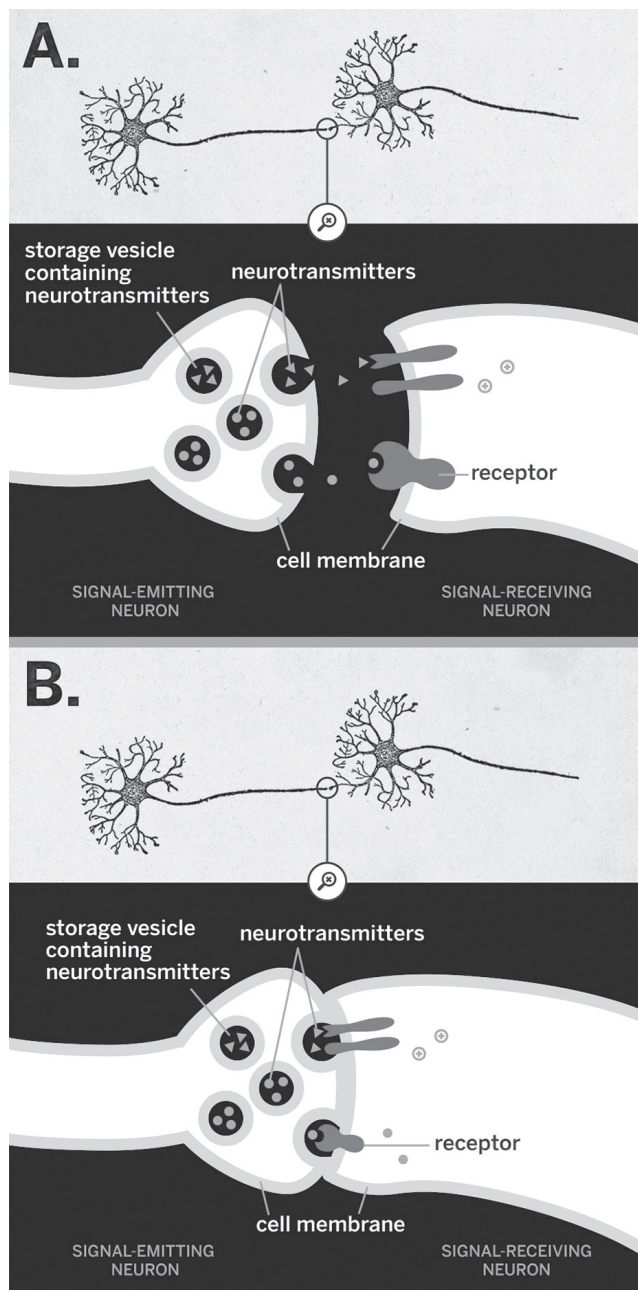
Not only can we see what the brain looks like inside, we can see which parts of the brain are working when a person is doing something in particular.

LESSON 1 Working with the Text

1. Does this image look more like a Localizer’s explanation or a Whole Brainer’s explanation?

Now, we are going to read about how modern scientists use images like this to understand the brain. You’ll see elements of the discoveries of the early brain scientists from Phineas’s time and learn about some very new concepts that could only be understood with this modern tool.

Read “Demystifying the Adolescent Brain,” paragraphs 1–15 (paragraphs 1–14 in Amplify ELA Grade 7 Anthology).



2. Which image best shows the structure of a synapse? Circle your choice.

a. A

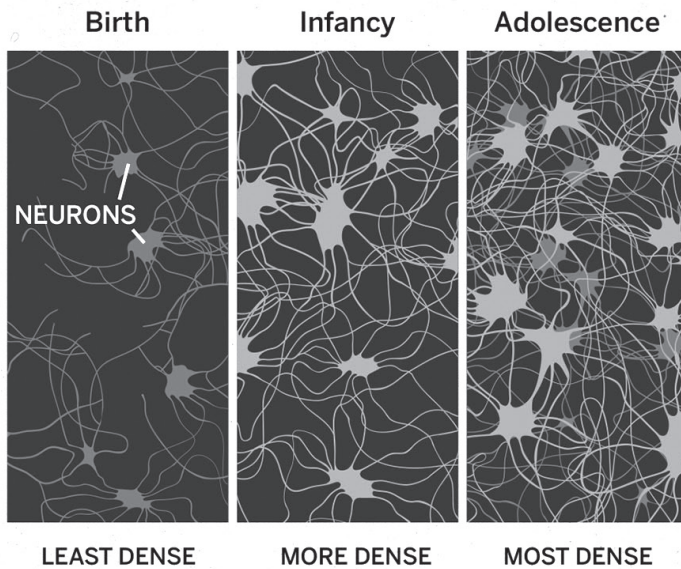
b. B

3. Provide textual evidence to support your answer to question 2.

LESSON 1 Close Read

Reread “Demystifying the Adolescent Brain,” paragraphs 11–14 (paragraphs 10–13 in Amplify ELA Grade 7 Anthology).

A. Stages in Synaptic Density:



1. Which image best represents synaptic pruning? Circle your choice.
 - a. A
 - b. B

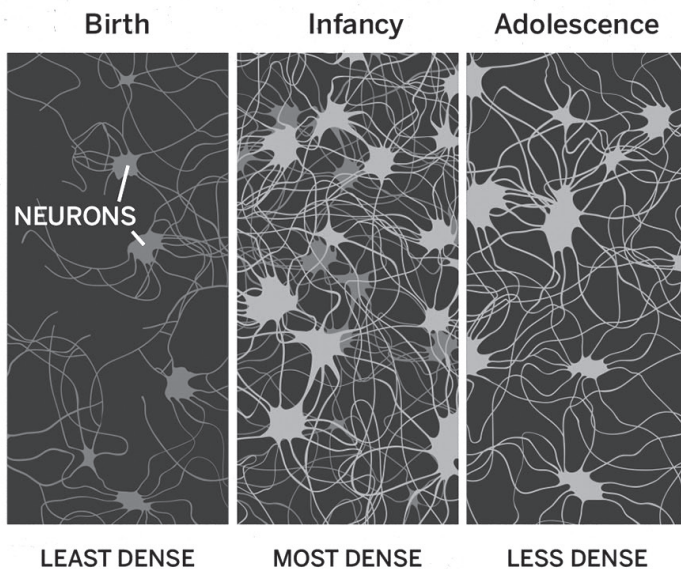
2. Provide textual evidence to support your answer to question 1.

When you’ve finished, share your answer with a classmate, friend, or family member. Explain to them why you think your answer is correct. If sharing with a classmate, listen carefully to their answer, asking them questions about their reasoning.

Acknowledge new information your classmate shares, and think about whether these points cause you to change your own views.

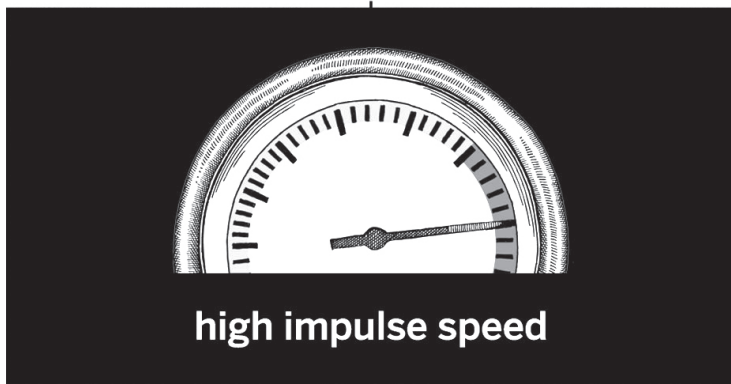
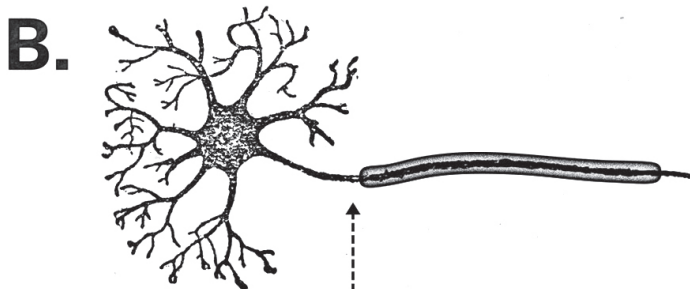
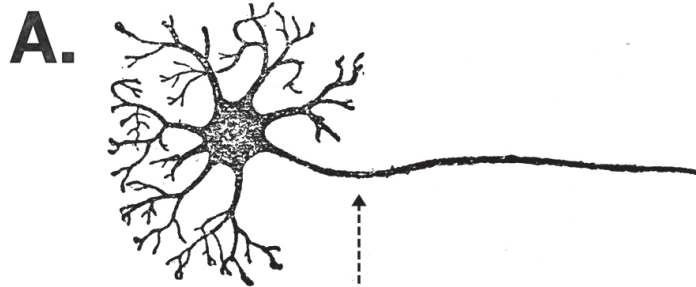
3. If you changed your mind during your discussion, explain what you heard or read that made you change your mind.

B. Stages in Synaptic Density:



LESSON 1 Close Read

Reread “Demystifying the Adolescent Brain,” paragraph 15 (paragraph 14 in Amplify ELA Grade 7 Anthology).



- 4. Which image best shows myelination? Circle your choice.
 - a. A
 - b. B
- 5. Provide textual evidence to support your answer to question 4.

When you've finished, share your answer with a classmate, friend, or family member. Explain to them why you think your answer is correct. If sharing with a classmate, listen carefully to their answer, asking them questions about their reasoning.

Acknowledge new information your classmate shares, and think about whether these points cause you to change your own views.

- 6. If you changed your mind during your discussion, explain what you heard or read that made you change your mind.

LESSON 1 Wrap-Up

Try to answer the following questions from memory!

1. True or false: An fMRI is used to examine only the brain’s structure. (Circle your choice)
 - a. True
 - b. False
2. True or false: The brain gets larger during adolescence. (Circle your choice)
 - a. True
 - b. False
3. True or false: Synaptic pruning makes it possible for information to travel more quickly in the brain. (Circle your choice)
 - a. True
 - b. False
4. True or false: Myelination slows down the brain’s ability to transmit information. (Circle your choice)
 - a. True
 - b. False
5. True or false: Neurotransmitters are chemicals that carry information through gaps between neurons. (Circle your choice)
 - a. True
 - b. False

Unit 7C, Sub-Unit 2: “Demystifying the Adolescent Brain” by Laurence Steinberg

LESSON 2 OVERVIEW

It seems as if just when you are getting more mature, you start to make some decisions that people call “immature.” How can it be that as your brain grows and develops, your behavior can become less responsible?

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Rules for Sharing, Response Starters, and Close Reading Practice guidelines.
3. Complete the Sub-Unit 2, Lesson 1 Solo.

LESSON 2 Working with the Text

Read “**Demystifying the Adolescent Brain,**” paragraphs 16–23 (paragraphs 15–22 in Amplify ELA Grade 7 Anthology).

1. Circle two words or phrases from the list below that you think would help you explain how dopamine works.
 - a. Risky things
 - b. Pleasure
 - c. Intensity
 - d. Brain’s reward center
 - e. Elicited
2. Circle two more words or phrases from the list below that you think would help you explain how dopamine works.
 - a. Rapid increase in adolescence
 - b. Responsible for
 - c. Foolish things
 - d. Driving fast
 - e. Less likely

LESSON 2 Working with the Text

3. Write a paragraph to explain how dopamine functions in the adolescent brain. Use at least two words or phrases that you circled in questions 1 and 2.

4. What causes dopamine to increase in the brain?

5. What do you feel when dopamine increases in your brain?

6. How is dopamine different in the adolescent brain than at other stages of life?

7. Why does the increase of dopamine activity cause someone to seek out certain kinds of behaviors?

Unit 7C, Sub-Unit 2: “Demystifying the Adolescent Brain” by Laurence Steinberg

LESSON 3 OVERVIEW

It is about time, isn't it, to learn about what adolescents can do, as well as adults.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Rules for Sharing, Response Starters, and Close Reading Practice guidelines.
3. Complete the Sub-Unit 2, Lesson 2 Solo.

LESSON 3 Working with the Text

Read “**Demystifying the Adolescent Brain,**” paragraphs 24–29 (paragraphs 23–28 in Amplify ELA Grade 7 Anthology).

1. According to the author, what kind of activities are connected to “hot cognition”?
Use evidence from the text to support your answer.

2. According to the author, what kind of activities are connected to “cold cognition”?
Use evidence from the text to support your answer.

3. Based on your own experience, which contributes more to success in playing sports: cold or hot cognition?

LESSON 3 Working with the Text

Reread about hot cognition in “**Demystifying the Adolescent Brain,**” paragraphs 24–26 (paragraphs 23–25 in Amplify ELA Grade 7 Anthology).

1. What are some examples of hot cognition?

2. At what age do people become really good at decisions that involve hot cognition?

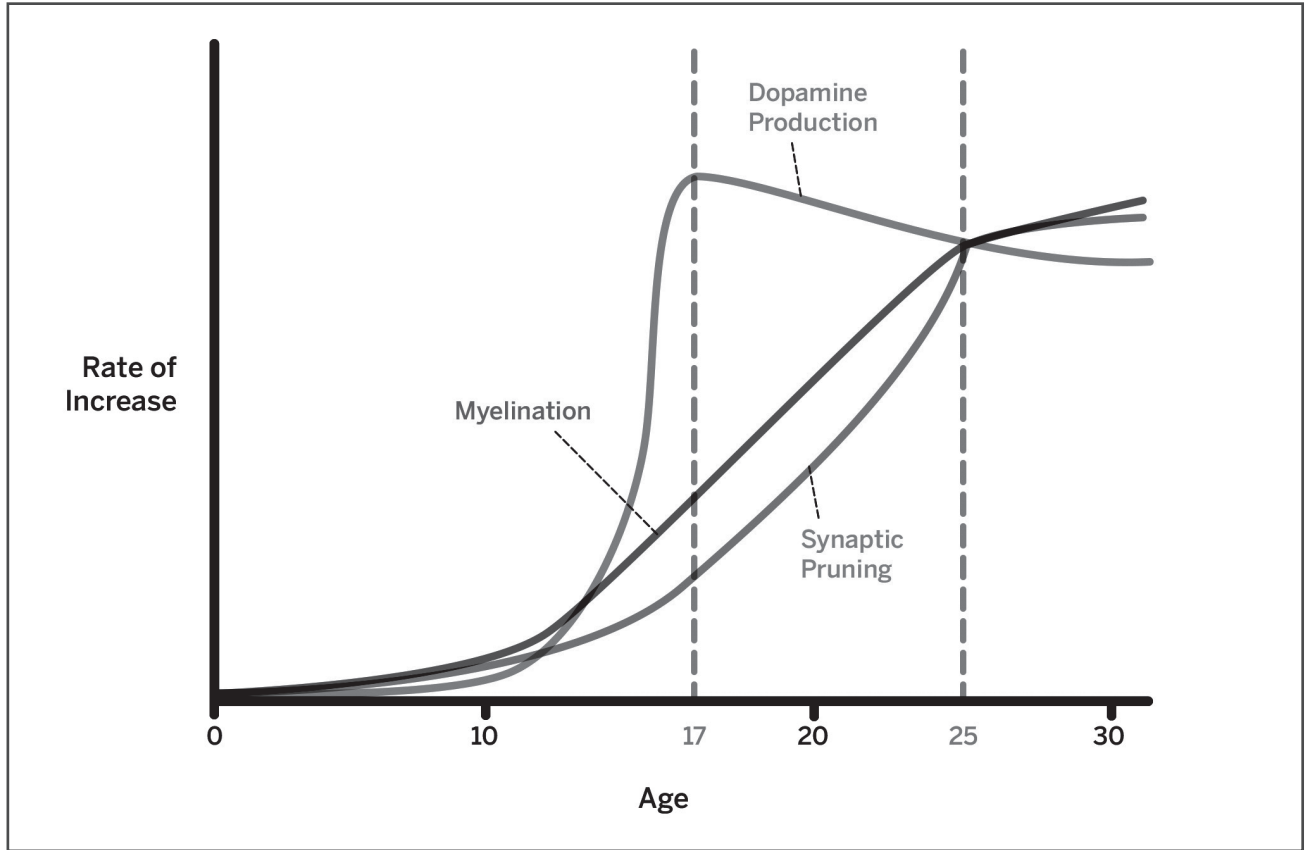
Reread about the adolescent brain in “**Demystifying the Adolescent Brain,**” paragraphs 16–23 (paragraphs 15–22 in Amplify ELA Grade 7 Anthology).

3. Which part of the brain is maturing throughout and after adolescence, and how (physically) does it mature?

4. What role does dopamine play in adolescents’ ability to assess risks and make sensible decisions?

LESSON 3 Working with the Text

In the chart below, notice the gap between when dopamine production speeds up and when synaptic pruning and myelination peak.



The synaptic pruning and myelination of the frontal cortex enable that part of the brain to communicate effectively with the part of the brain that is processing emotions.

One way to summarize this biological picture could be, “Teenagers just can’t be trusted.”

- 5. Is there another way to summarize the author's argument about teenagers and dopamine? Use your own words to write your summary.

Unit 7C, Sub-Unit 2: “Demystifying the Adolescent Brain” by Laurence Steinberg

LESSON 4 OVERVIEW

Today is a Flex Day. Your teacher decides what happens today based on your work to date. The way in which your teacher helps you today depends on what he or she has seen in your work.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Complete the Sub-Unit 1, Lesson 3 Solo.

LESSON 4 Flex Day

This is a Flex Day. Your teacher will direct you to respond to a Writing Prompt, complete a Revision Assignment, do a grammar exercise, and/or reread some part of the text.

Unit 7C, Sub-Unit 3



The Man Who Mistook His Wife for a Hat by Oliver Sacks

These passages from *The Man Who Mistook His Wife for a Hat* should sound familiar if you've completed the *Perception Academy* Quest. In this sub-unit, you have the chance to study each one and think about the science in these case studies.



Unit 7C, Sub-Unit 3: *The Man Who Mistook His Wife for a Hat*

LESSON 1 OVERVIEW

Now that you have learned about all sorts of people with brain injuries, and you know more about how the brain works, you can start to gain insight by seeing how these injuries, and the behaviors that result from the injuries, compare to one another.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
2. Review the Rules for Sharing, Response Starters, and Close Reading Practice guidelines.
3. Complete the Sub-Unit 2, Lesson 4 Solo.

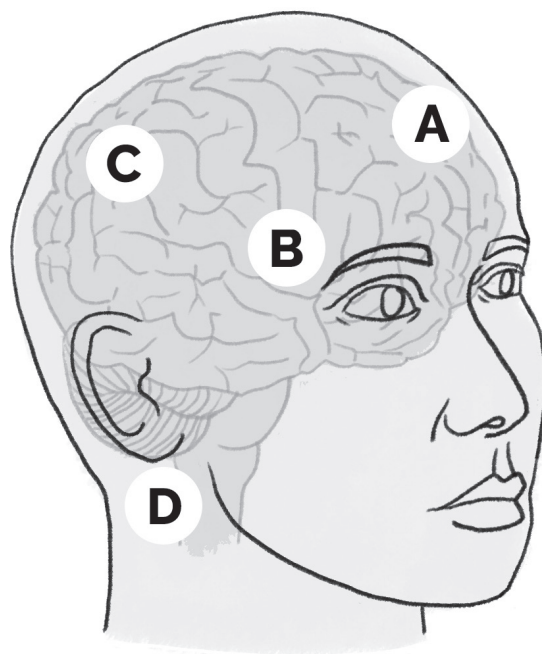
LESSON 1 Working with the Text

Today, you are returning to the book about Phineas Gage. You'll look back at his case so that you can compare it to a case study from Oliver Sacks's text, *The Man Who Mistook His Wife for a Hat*.

First, reread this final chapter from *Phineas Gage* to remember some of the details of Phineas's injury and the symptoms he suffered as a result.

Reread ***Phineas Gage: A Gruesome but True Story About Brain Science*** "Putting Phineas Together Again," paragraphs 1–17.

1. According to the description in the text, where are the frontal lobes located? Write the letter that corresponds to the right location on the head diagram below. _____



LESSON 1 Working with the Text

- 2. Read the text to find descriptions of the unusual behaviors or symptoms of patients who have frontal lobe damage. List three symptoms of frontal lobe damage.

Read the case study about Mrs. B. in *The Man Who Mistook His Wife for a Hat* excerpt from chapter 13, "Yes, Father-Sister," paragraphs 1–21.

- 3. List any behaviors that seem similar to those of Phineas Gage.

- 4. What symptoms or behaviors do you think are most noteworthy in Mrs. B.'s case?

LESSON 1 Close Read

Take another look at Mrs. B.'s case study.

Reread *The Man Who Mistook His Wife for a Hat* excerpt from chapter 13, "Yes, Father-Sister," paragraphs 1–21.

1. List any details about her symptoms or behaviors that seem unusual.

Reread your answer to question 2 in this lesson's Working with the Text section, where you listed three symptoms of frontal cortex/lobe damage.

2. Explain why Mrs. B.'s behaviors might be symptoms of frontal lobe damage.

Review *Phineas Gage: A Gruesome but True Story About Brain Science* "Putting Phineas Together Again," paragraphs 4 and 5.

3. Describe one major difference between how Fleischman and Sacks write about the effects of frontal lobe damage.

LESSON 2 OVERVIEW

Today is a Flex Day. Your teacher decides what happens today based on your work to date. The way in which your teacher helps you today depends on what he or she has seen in your work.

Prep

Before you begin this lesson:

- 1.** Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
- 2.** Complete the Sub-Unit 3, Lesson 1 Solo.

LESSON 2 Flex Day

This is a Flex Day. Your teacher will direct you to respond to a Writing Prompt, complete a Revision Assignment, do a grammar exercise, and/or reread some part of the text.

LESSON 3 OVERVIEW

When one person performs an action that you have never seen before, it may just seem strange. But if you see another person do something similar, you may be able to draw a conclusion.

Prep

Before you begin this lesson:

- 1.** Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
- 2.** Review the Close Reading Practice Guidelines.
- 3.** Complete the Sub-Unit 3, Lesson 2 Solo.

LESSON 3 Working with the Text

You're going to begin today by reading the transcript of a video called "**Visual Neglect,**" in which an older woman named Peggy is shown attempting to draw stars and daisies—only something keeps going wrong.

LESSON 3 Working with the Text

“Visual Neglect” Video Transcript [abridged]

Narrator: Peggy Palmer has normal vision. She should be able to copy this star easily. But something odd is happening. One whole side of the star is missing. Peggy has a condition called visual neglect. Although her eyesight is fine, half of her visual world no longer seems to matter. Ten years ago, Peggy suffered a stroke in the parietal lobes of her brain.

Doctor Ramachandran: The parietal lobes are concerned mainly with creating a three-dimensional representation of the spatial layout of the world, allowing a person to walk around, to navigate, to avoid bumping into things. When the right parietal is damaged, the patient is unable to deal with the left side of the world.

Narrator: This condition has fascinated neurologists for more than a century because it reveals not only how the brain shapes the way we perceive space in the present, it even determines the spatial look of our memories. This became apparent when Peggy was asked to draw a daisy from memory.

Peggy: All right. A daisy, it shall be.

Narrator: For neuropsychologist Peter Halligan, Peggy’s drawings reveal exactly what’s gone wrong.

Peter: It’s like a radar system, whereby the actual radar system on the left-hand side is no longer working well. If someone comes in on my left-hand side now, or I hear a sound, my eyes would immediately move to the left-hand side. That makes me, for evolutionary purposes, very aware of my environment. Because if I wasn’t aware of those things, I’d have accidents, I’d get hurt, or I might get eaten by wild animals or whatever. Now in Peggy’s case, she will not attend to those things that we would normally be aware of.

Narrator: Peggy thinks she’s drawn her daisies right, until it’s pointed out to her.

Peter: You’ve noticed anything?

Peggy: Oh, dear.

Peter: So what Peggy’s drawn for us is several nice daisies with the left side missing. Same with this one, and this one, and look at this one. This is a very good example.

Doctor Ramachandran: Which means she’s not only neglecting events in the world, but when she conjures up a mental image, she’s ignoring the left side of that mental image.

Peggy: Well, I thought I was going all the way around, you see.

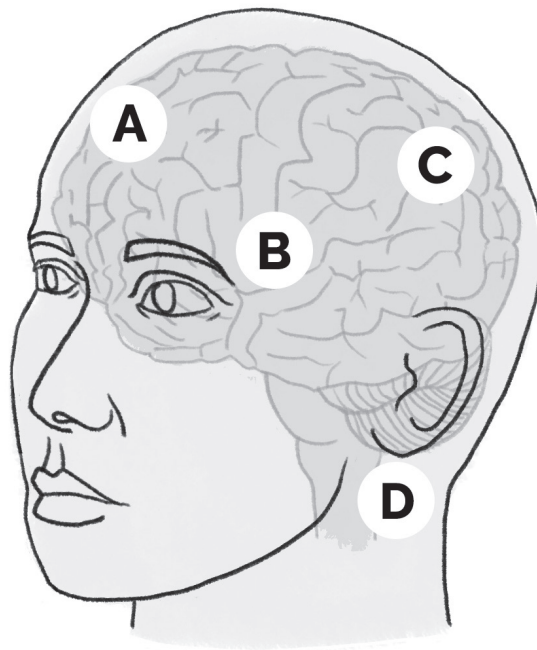
Doctor Ramachandran: And this shows you that this is not simply a sensory problem, but a problem of consciousness.

Peggy: I don’t know [laughing]. It’s because I was so concentrated on that side it takes everything away, you see. It’s an attention, really, that is taken away. There must be two attentions somewhere in your body, where one side is taking the other one away. I can’t make it out at all. Very odd.

LESSON 3 Working with the Text

1. What caused Peggy's brain injury? Circle your choice.
 - a. A car accident
 - b. A stroke
 - c. A heart attack
 - d. A tamping iron

Refer to the model of the human head to answer the following question.



2. What part of Peggy's brain was damaged? Circle your choice from the list below.
 - a. Frontal cortex
 - b. Broca's area
 - c. Parietal lobe
 - d. Brain stem
3. What are her symptoms?

LESSON 3 Working with the Text

Read *The Man Who Mistook His Wife for a Hat* excerpt from chapter 8, “Eyes Right!,” paragraphs 1–5.

4. What caused Mrs. S.’s brain injury?

Refer to the model of the human head earlier in this lesson to answer the following question.

5. What part of Mrs. S.’s brain was damaged? Circle your choice from the list below.

- a. Frontal cortex
- b. Broca’s area
- c. Parietal lobe
- d. Brain stem

6. What are her symptoms?

7. What similarities did you notice between the cases of Peggy and Mrs. S.?

LESSON 3 Close Read

Now you're going to examine a sample essay to see how the writer establishes a claim, presents evidence to support the claim, and explains the evidence.

Read the following sample essay, paying close attention to the evidence the writer uses.

Sample Essay: Seeing Only One Side of Things

Here's an amazing fact that most people don't know: two people can be looking at the exact same thing, but see something different because of the way their brains work. Most people think it's a person's eyes that see, but it's actually the person's brain doing the work. A brain injury can change what the person sees, even if the person's eyes are not damaged and are totally normal and functioning. The video "Visual Neglect" from NOVA's *Secrets of the Mind* shows a stroke patient, Peggy, who can only see what her damaged brain lets her see. Because of her stroke she can only see the left sides of things. Just like Peggy, Mrs. S from Oliver Sacks' *The Man Who Mistook His Wife for a Hat* also ignores the left side of things when she looks at them. In both the video and the case study, Peggy and Mrs. S have problems with their brains that cause them to neglect the left side of their vision, showing that the brain controls what we see, not the eyeballs!

Before the development of brain imaging technology, scientists could only speculate about the workings of the adolescent brain. Now, however, with the same scanners that are used to identify tumors and torn ligaments, researchers can see inside the adolescent's brain and watch what happens when teenagers think. We now know that, other than the first three years of life, no period of development is characterized by more dramatic brain changes than adolescence.

In the video, we see Peggy showing how her brain ignores the left side of things. She is asked to draw a daisy, and she draws one with the entire left side of the flower missing. She is not even aware of the fact that she's drawn only the right half of a flower until someone tells her. Peter Halligan, a doctor in the video, states, "The radar system on the left-hand side is no longer working well" (*Secrets of the Mind*). The part of her brain damaged by the stroke is the parietal lobes. That is the part responsible for seeing whole images. Another doctor says, "The parietal lobes are concerned mainly with creating a three-dimensional representation of the special layout of the world...When the right brain is damaged, the person is unable to deal with the left side of the world" (*Secrets of the Mind*). The doctor explains that people who have damage in the parietal lobes will have problems seeing the world the way most people see it. They see only half of things, not the whole. If the right lobe is harmed, then a person will have problems seeing the left side.

In the chapter "Eyes Right" of *The Man Who Mistook His Wife for a Hat*, Mrs. S is diagnosed with "hemi-inattention." Sacks writes, "Sometimes, she will put on lipstick, and make up the right half of her face, leaving the left half completely neglected" (Eyes Right 2). In this quote, Sacks shows how Mrs. S also ignores the left side of things. Mrs. S developed ways to deal with this disability, though. She uses a special rotating wheelchair to move her body so that she can eat from both sides of her plate, not just the right side. Sacks explains that Mrs. S swivels "her chair to the right, keeping her eyes to the right, until the previously missed half now comes into view" (Eyes Right 3). Her "hemi-inattention" causes her to ignore the left side of her visual field, but she knows this and has learned ways to cope with it.

In "Visual Neglect" and *The Man Who Mistook His Wife for a Hat*, the patients have trouble seeing things on the left side of them because they have a similar type of brain damage. If you were a neurologist and you watched Mrs. S put makeup on only the right side of her face, or watched Peggy draw only the right side of a flower, you'd be able to figure out exactly where the problem was in their brains. In both cases, the patients' eyes are just fine. It's their brains that are causing them to ignore the left side. The stories of Peggy and Mrs. S show us that we rely on our brains to make sense of everything we see and put it all together as a whole.

LESSON 3 Close Read

1. Which sentence do you think best represents the claim? Write this sentence below.

2. What is one piece of evidence that the writer uses to support the claim?

3. How does the writer explain that evidence? Write down any supporting details the writer gives for the evidence you chose in question 3.

Unit 7C, Sub-Unit 4

Write an Essay



The pieces of writing you do over the next few classes will build on each other to create an essay that's longer and more polished than the short writing you normally do in these Amplify lessons. Putting these pieces together into a finished product will take all the skill and thought you usually bring to your writing, plus extra attention to careful organization.



ESSAY LESSONS: OVERVIEW

Calendar of Essay Lessons

What you'll be doing to write your essay:

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Lesson 1</p> | <p>Step 1: Discuss the essay prompt.</p> <p>Step 2: Gather evidence: Gather evidence about adolescent behavior and Phineas.</p> <p>Step 3: Write the first body paragraph: Compare Phineas's behavior to adolescent behavior.</p> |
| <p>Lesson 2</p> | <p>Step 4: Gather evidence: Gather evidence about Phineas's brain and an adolescent's brain.</p> <p>Step 5: Write the second body paragraph: Compare Phineas's brain to an adolescent brain.</p> |
| <p>Lesson 3</p> | <p>Lesson 3 Essay Flex Day</p> |
| <p>Lesson 4</p> | <p>Step 6: Revise body paragraphs: Further explain a piece of evidence in one of your body paragraphs.</p> <p>Step 7: Write your introduction: Review the elements and techniques for writing a lead, then write a lead and introduction.</p> |
| <p>Lesson 5</p> | <p>Step 8: Edit your essay: Edit your essay, including correct citation and punctuation of direct quotes.</p> <p>Step 9: Write final copy: Rewrite your essay to create a final copy.</p> |

Essay Prompt:

Compare Phineas's behavior and brain to those of an adolescent.

Unit 7C, Sub-Unit 4: Write an Essay

LESSON 1 OVERVIEW

It's essay-writing time. Focus on tackling each step, bringing all of your new skills and knowledge to bear, and you will end up with something you can be proud of.

Prep

Before you begin this lesson:

- Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson

LESSON 1 Discuss Essay Prompt

Step 1: Discuss the essay prompt

You have learned many things in this unit that will help you write this essay.

Think about which readings and skills/activities you might think back to as you try to answer this question.

Texts:

- *Phineas Gage: A Gruesome but True Story About Brain Science* by John Fleischman
- “Demystifying the Adolescent Brain” by Laurence Steinberg

Skills:

- Describing what different parts of the brain do
- Explaining how the brain develops in adolescence
- Connecting a specific injury to changes in behavior
- Writing comparisons about behaviors
- Applying knowledge of the brain to think through possible explanations for behaviors

Now, even though you have already done all of these things, it is a challenge to pull together an essay that communicates what you understand and think.

LESSON 1 Discuss Essay Prompt

Your final essay will include these elements:

Elements of Your Response to Text Essay

An introduction to the essay and claim. It includes:

- A lead
- The name of the text(s) and its author(s)
- Relevant background or context of the topic and the text(s)
- A statement of the claim

Body paragraphs to develop the reasoning and evidence. Each includes:

- Specific textual evidence that supports your claim
- Description of the key parts of your evidence
- Clear explanation of how this evidence supports your claim

A conclusion that wraps up the ideas about the claim/argument. It includes:

- A restatement of the claim
- A final thought

You'll go through the usual steps, starting by rereading for evidence and then writing one part of the comparison.

LESSON 1 Gather Evidence

Step 2: Gather evidence

Reread “**Demystifying the Adolescent Brain,**” paragraphs 16–29 (paragraphs 15–28 in Amplify ELA Grade 7 Anthology).

1. List at least four examples of adolescent behaviors from the text. Number your examples. After each example, write a brief description of it in your own words.

Unit 7C, Sub-Unit 4: Write an Essay

LESSON 2 OVERVIEW

You're getting there. Building up your essay day by day.

Prep

Before you begin this lesson:

- Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
 - Any writing you've completed for your essay in previous lessons and Solos

LESSON 2 Gather Evidence

Step 4: Gather evidence

If you're able to access your work from Sub-unit 1, Lesson 10, review what you wrote about which part of Phineas's brain was injured. If you're not able to access your previous work, continue on to the instructions below.

Reread ***Phineas Gage: A Gruesome but True Story About Brain Science*** "Putting Phineas Together Again," paragraphs 1–17.

1. List any additional evidence from the text about the location of Phineas's brain injury.

2. Write 3–5 sentences explaining which area of Phineas's brain was injured and support your claim with evidence from the text.

Unit 7C, Sub-Unit 4: Write an Essay

LESSON 2 Gather Evidence

Reread “**Demystifying the Adolescent Brain,**” paragraphs 15–21 (paragraphs 14–20 in Amplify ELA Grade 7 Anthology).

3. List any details that show how a typical adolescent brain is similar to or different from Phineas’s brain after his injury. (**NOTE:** Prefrontal cortex = frontal cortex)

LESSON 2 Second Body Paragraph

Step 5: Write the second body paragraph

The essay prompt asks you to compare Phineas’s behavior and brain to an adolescent’s.

Make sure you use information and quotes from both texts as you write to support your comparison with clear evidence.

Write your second body paragraph, comparing and contrasting Phineas’s brain (after his injury) to the brain of an adolescent.

Unit 7C, Sub-Unit 4: Write an Essay

LESSON 3 OVERVIEW

Today is a Flex Day. Your teacher decides what happens today based on your work to date. The way in which your teacher helps you today depends on what he or she has seen in your work.

Prep

Before you begin this lesson:

- Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
 - Any writing you've completed for your essay in previous lessons and Solos

LESSON 3 Essay Flex Day

This is a Flex Day. Your teacher will direct you to complete a self-assessment, then revise your body paragraphs or your claim statement.

Unit 7C, Sub-Unit 4: Write an Essay

LESSON 4 OVERVIEW

Now let's see if, in addition to brain science, you have learned some of Fleischman's tricks. Can you engage a reader as well as he can? Or, maybe you prefer a different style.

Prep

Before you begin this lesson:

- Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
 - Any writing you've completed for your essay in previous lessons and Solos

LESSON 4 Revise Body Paragraphs

Step 6: Revise body paragraphs

Today you're going to spend some time revising your body paragraphs.

You'll work on adding more description or explanation to your evidence, or adding new evidence to help support your claim.

This activity is similar to other Revision Assignments you've already done. The goal here is to use evidence to convince your reader that your claim is true.

1. Reread your body paragraphs. Try to find a place where you could add more evidence or describe your evidence more completely.
2. For each place you've identified as needing revision, write 3–5 sentences that present additional evidence to support your claim or describe your evidence further. Write your revisions directly underneath your original body paragraphs in Lessons 1 and 2.

LESSON 4 Write Introduction

Step 7: Write your introduction

These are the elements you will include in the introduction you write in class today.

Elements of an Introduction—Response to Text Essay

- An engaging lead to grab the reader's attention and to give the reader a sense of what your essay is about
- The name of the text(s) and its author(s)
- Key background or context to help the reader understand the topic of your essay and the text(s) you are using
- Your claim/argument

LESSON 4 Write Introduction

1. Reread the beginning of each text.

Excerpt from *Phineas Gage: A Gruesome but True Story About Brain Science*, “‘Horrible Accident’ in Vermont”

The most unlucky/lucky moment in the life of Phineas Gage is only a minute or two away. It’s almost four-thirty in the afternoon on September 13, 1848. Phineas is the foreman of a track construction gang that is in the process of blasting a railroad right-of-way through granite bedrock near the small town of Cavendish, Vermont. Phineas is twenty-six years old, unmarried, and five feet, six inches tall, short for our time but about average for his. He is good with his hands and good with his men, “possessing an iron will as well as an iron frame,” according to his doctor. In a moment, Phineas will have a horrible accident. (1)

It will kill him, but it will take another eleven years, six months, and nineteen days to do so. In the short run, Phineas will make a full recovery, or so it will seem to those who didn’t know him before. Old friends and family will know the truth. Phineas will never be his old self again. His “character” will change. The ways in which he deals with others, conducts himself, and makes plans will all change. Long after the accident, his doctor will sum up his case for a medical journal. “Gage,” his doctor will write, “was no longer Gage.” Phineas Gage’s accident will make him world famous, but fame will do him little good. Yet for many others—psychologists, medical researchers, doctors, and especially those who suffer brain injuries—Phineas Gage will become someone worth knowing.

Excerpt from “Demystifying the Adolescent Brain” by Laurence Steinberg

Adolescents can be mature one moment and frustratingly immature the next. The nature of brain development helps explain why.

In addition to being a transition time in physical, intellectual, emotional, and social development, adolescence is a time of important changes in the structure and function of the brain. Scientists are beginning to understand how the psychological changes of adolescence are linked to brain maturation.

Before the development of brain imaging technology, scientists could only speculate about the workings of the adolescent brain. Now, however, with the same scanners that are used to identify tumors and torn ligaments, researchers can see inside the adolescent’s brain and watch what happens when teenagers think. We now know that, other than the first three years of life, no period of development is characterized by more dramatic brain changes than adolescence.

LESSON 4 Write Introduction

2. Which text has a better lead, and what makes you think it's good?

Before starting your lead and the rest of your introduction, review the paragraphs you have written as the body of your essay. Consider these questions as you reread your writing:

- What are the key reasons you develop to support your main idea?
- What evidence do you include to support your reasons?
- In what order do you include all of this information?

Keep these key elements in mind as you begin to construct your introduction.

3. Write two or three leads for your introductory paragraph. Leave a space in between each so you can see each one clearly. Your lead can...

- ask a question.
- quote the text.
- help the reader relate to the topic of the essay.
- include an interesting detail from the text.

The point is to experiment and have fun writing an engaging opening line for your essay. You're going to write more than one lead so that you can choose which one you like the best.

LESSON 4 Write Introduction

5. Read the complete introduction silently to yourself and make any changes needed so that the sentences flow well together.

Unit 7C, Sub-Unit 4: Write an Essay

LESSON 5 OVERVIEW

Now, here is where you show that you're really ready for someone to read your piece. Think about editing as a way to smooth the path for your reader. If you spend just a little extra time and energy here, your reader will be very grateful.

Prep

Before you begin this lesson:

1. Gather the following materials:
 - Any handouts from your teacher
 - Reading assignment(s) for this lesson
 - Any writing you've completed for your essay in previous lessons and Solos
2. Review the Rules of Sharing and Response Starters.

LESSON 5 Edit Your Essay

Step 8: Edit your essay

Use the Editing Process and Guidelines for Citing and Punctuating a Direct Quote to correct any technical errors in your essay and make sure you've cited and punctuated quotes correctly.

Editing Process

Part 1

Read your introduction and body paragraphs in order. You may want to read them aloud quietly to yourself, or to a peer, friend, or family member—not for editing, but to remind yourself that you are trying to communicate with your reader. If you think something might not be clear enough, it probably isn't. Try explaining it out loud, then rewriting it.

1. Listen for sentence flow:

- Read your essay aloud to yourself, quietly and slowly.
- Is it clear how each sentence follows from the sentence before it?
- Rewrite sentences in order to make that connection obvious to the reader.

2. Check for completeness: To answer the prompt completely, be sure to include...

- an introduction with a lead, a claim, and necessary background information.
- one body paragraph that compares the *behavior* of Phineas to an adolescent's.
- one body paragraph that compares the *brain* of Phineas (post-accident) to an adolescent's.
- a transition between the two paragraphs that helps the reader see the connection between the two.

LESSON 5 Edit Your Essay

Part 2

Reread your essay with these changes. It should flow better than when you read it 10 minutes ago. It is not too late to make an additional change!

3. Now you'll read for errors in grammar and spelling:

- Read the sentences from the end of the essay to the beginning (out of order so that you notice if each one stands alone as a complete sentence).
- Correct errors in punctuation that make it difficult to tell each sentence from the other.
- Check for spelling errors. Which words do you tend to misspell? Which are the scientific words you want to make sure you get right? Check them in the text.

4. Check the citations and punctuation of your quoted text (refer to the Guidelines for Citing and Punctuating a Direct Quote below):

- Make sure you can tell which parts someone else wrote (quotation marks around those parts).
- Make sure you can tell which text each quotation comes from (author, text name, paragraph number) so that a reader can find it in the text.
- See the diagram to note where the commas are and how to quote something that is already a quote.

Guidelines for Citing and Punctuating a Direct Quote

Cite the chapter title and paragraph number in parentheses at the end of the sentence.

Just ten weeks after his accident, Phineas seems to be back to his old self because, "he can count, feed and dress himself, and sing. He can speak clearly and make sense of what he hears" ("Horrible Accident" in Vermont 29).

Use double quotation marks to show where the quote begins and ends.

Even though Phineas is physically recovered, Dr. Harlow describes Phineas's changed behavior when he writes, "He is fitful, irreverent, indulging at times in the grossest profanity" ("Horrible Accident" in Vermont 33). Phineas is not his old self. He is a changed man.

Use single quotation marks around any dialogue within the direct quote.

Only include the end punctuation of your quote if it is a question mark or exclamation point.

Fleischman wants his reader to carefully consider Phineas's physical and mental recovery, so he asks, "was Phineas lucky or unlucky?" ("Horrible Accident" in Vermont 3).

Add a comma to separate your introduction to the quote and the direct quote itself.

