

In this unit, students explore a series of narrative non-fiction and informational texts that expose the workings of the brain, ask them to reflect on what it means to be human, and allow them to consider how the development of their own brains during adolescence may impact their experiences and thinking. This unit supports students as they build awareness of their unique cognitive strengths and challenges, and of the ways in which they can exert control over their own learning.

Phineas Gage: A Gruesome but True Story About Brain Science, documents the fascinating story of Phineas Gage, whose dramatic accident, injury, and recovery made him a famous case study in neuroscience. Students trace the impact of Phineas's extraordinary brain injury, the remarkable efforts of doctors and scientists to learn from his survival, and the early understanding of brain structure and function that grew from that knowledge. Students then move on to readings from *Inventing Ourselves: The Secret Life of the Teenage Brain*, where they add information to their working model of the brain and consider whether and how adolescent behavior may be shaped by their developing brains. In excerpts from Oliver Sacks's book, *The Man Who Mistook His Wife for a Hat*, students apply their growing understanding of how the brain functions to modern brain injury cases. Finally, the *Perception Academy* Quest lets students apply their newly acquired knowledge to a fictional case of brain injury to diagnose the injured region of the brain based on the symptoms and behaviors of the patient.

Core texts your student will read:

- *Phineas Gage: A Gruesome but True Story About Brain Science* by John Fleischman
- Excerpts from *Inventing Ourselves: The Secret Life of the Teenage Brain* by Sarah-Jayne Blakemore
- Excerpt from "Demystifying the Adolescent Brain" by Laurence Steinberg
- Excerpts from *The Man Who Mistook His Wife for a Hat* by Oliver Sacks
- Excerpts from the majority and dissenting opinions in *Roper vs. Simmons*

What my students will do/learn:

- Students read about and discuss Phineas Gage's traumatic accident and brain injury, focusing on what might be learned about the structure and function of the brain through the physical and psychological effects of the injury on Phineas.
- Students explore the biology of adolescent brain development and consider the debates about the ways in which this brain development affects teenage behaviors, including organization and risk taking. They discuss what they are learning in light of their own experiences, and society's expectations of adolescence.
- Students continue to add to their understanding of the structures and functions of the brain as they investigate additional case studies and consider the symptoms and behaviors of other brain injury patients. Students continue to use key classroom

routines, including the sharing routine, during which classmates respond to shared writing by noting one effective way the writer used details or evidence.

- Students continue to write in response to prompts 2–3 times weekly, and practice analytic writing in response to text by developing an idea or claim and providing support with details or evidence.
- Students write an end-of-unit essay responding to the following prompt: Compare and contrast Phineas's behavior and brain to those of an adolescent.

Here are some conversation starters that you can use during this unit to promote discussion and encourage continued learning with your student.

1. What stood out to you about Phineas's injury and the effects it had on his behaviors and emotional state? What is something you learned about the brain as you studied his case?
2. What is adolescence and what qualities do people typically exhibit during this time in their lives? Was there anything in the readings about adolescence that surprised you? That you disagree with?
3. Can you share a piece of writing with me in which you include evidence or details from the text to support your controlling idea or claim? (Provide feedback to your student by finding something in their writing that you can respond to as a reader. For example, "The way you explained how the doctor's care allowed Phineas's brain to swell with less damage really helped me understand the how Phineas might be considered lucky in some ways.")
4. When you consider his brain and his behavior, how was Phineas like an adolescent? In what ways was he different?