

Dear Teacher,

The following tools are designed to help support and enrich the *Heads Up* lesson plan and student article “Pushing Pause”:

- 1A) Suggested Answers for Lesson Discussion Questions
- 1B) Suggested Answers for Student Work Sheet
- 2) Academic and Domain-Specific Vocabulary Lists
- 3) Writing Prompts
- 4) Paired-Text Reading Suggestions
- 5) Grades 6–12 Standards Charts (CCSS & NGSS)

For copies of the lesson plan, student work sheet, and student article, visit:

headsup.scholastic.com/pushingpause/lesson.

Note on Text Complexity: The “Pushing Pause” student article has a text level accessible for students in grades 6–8. For readers at a lower reading level, a grades 4–5 version of the article is available at:

headsup.scholastic.com/pushingpause/leveled.

1A Suggested Answers for Lesson Discussion Questions

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Have students use evidence from the text of the article “Pushing Pause” when responding to the After-Reading Questions. Suggested answers are provided in *italics* after each question.

Grades 6–8:

- Which parts of the brain are involved in decision making, and how does each part contribute? (*The limbic system controls the emotional response to a decision. The prefrontal cortex governs the rational or logical response to a decision.*)
- Teens can feel an intense emotional drive to act impulsively. What are the pros and cons of this drive? (*Pro: It makes teens more likely to try new things and to be exposed to new ideas—which helps them to develop their own identities. Con: Teens may make high-risk decisions that have negative consequences.*)
- What do scientific studies reveal about how self-control in decision making can affect a person’s life? (*Studies show that people with higher levels of self-control are more likely to get better grades, create good relationships, and obtain higher incomes. They are also less likely to do drugs or commit crimes.*)
- Identify strategies for pausing before making a decision. How can a person improve his or her ability to pause? (*Pausing strategies include taking a deep*

breath, counting to 10, and asking yourself, “Is this worth it?” To improve the ability to pause, a person could keep practicing a pause strategy repeatedly to train his or her brain.)

Grades 9–10:

- Identify three factors that influence decision making, and explain how these factors affect the process. (*Decision making is influenced by: 1. The situation and whether it causes an emotional response via the limbic system. 2. The stage of brain development—the more developed the prefrontal cortex is, the more rational decisions are likely to be. 3. Whether a person has high or low self-control, naturally or through practicing strategies for improvement.*)
- Using what you’ve learned about brain development, explain why the decision-making process is different for teens than for adults, and what this can result in. (*Decisions are made by the limbic system and prefrontal cortex working together. The prefrontal cortex is still developing in teens, so the limbic system plays a more powerful role in teen decision making. This can lead teens to make impulsive decisions based more on emotion than logic.*)
- Teens, more than adults, can feel an intense emotional drive to act impulsively. What is an advantage of this drive? What is a disadvantage? Give an example of each. (*Advantage: Impulsivity makes it easier for teens to put themselves in new or challenging situations that help them develop new interests and skills, like trying out for the school play or going off to college. Disadvantage: Teens might make an emotional, impulsive decision based on peer pressure and without thinking about negative consequences.*)
- What long-term benefits are associated with self-control? Use evidence demonstrated by scientific studies. (*Science shows that people with higher levels of self-control are more likely to get better grades, create good relationships, and obtain higher incomes. They are also less likely to do drugs or commit crimes.*)
- How can a person improve his or her ability to pause? (*A person could repeatedly practice a pause strategy to train the brain. Strategies include taking a deep breath, counting to 10, and asking oneself, “Is this worth it?”*)

Grades 11–12:

- Identify three factors that influence decision making, and analyze how these factors are interrelated. (*Decision making is influenced by: 1. If the situation evokes an emotional response, the limbic system is*

triggered. 2. Emotional response by the limbic system can be moderated by the rational prefrontal cortex, depending on how developed it is. 3. The level of self-control influences how much of a role the initial emotional reaction will play in decision making.)

- Using what you’ve learned about brain development, explain why the decision-making process is different for teens than for adults. What is an advantage of this difference? What is a disadvantage? Give an example of each. *(Decisions are made by the limbic system and prefrontal cortex working together. The prefrontal cortex is still developing in teens, so their limbic systems play a more powerful role than in adults. This can lead teens to make impulsive decisions based more on emotion than logic. An advantage of this is that impulsivity makes it easier for teens to put themselves in new or challenging situations that help them develop new interests and skills, like trying out for the school play or going off to college. A disadvantage of this is that teens might make an emotional, impulsive decision based on peer pressure and without thinking about negative consequences.)*

- According to scientific studies, what long-term benefits are correlated with self-control, and how can self-control be improved? *(Studies show that people with higher levels of self-control are more likely to get good grades, create strong relationships, and obtain higher incomes. They are also less likely to do drugs or commit crimes. To improve self-control, a person could repeatedly practice a pause strategy to train the brain. Strategies include taking a deep breath, counting to 10, and asking oneself, “Is this worth it?”)*

1B Suggested Answers for Student Work Sheet

headsup.scholastic.com/pushingpause worksheet

1. Identify a situation in which you find it difficult to pause. *(Answers will vary.)*
2. Which brain areas are at work in the decision-making process, and what are their roles in making it difficult for you to pause in the situation you identified above? *(The limbic system controls a person’s emotional response to a situation, and the prefrontal cortex controls the rational response. However, in teens, the prefrontal cortex isn’t finished developing, which helps explain why teens’ emotional responses feel so much stronger than rational responses. The powerful emotional response can make it hard for teens to want to pause and think about long-term consequences.)*

3. What are three things you could practice doing to help you pause in this situation? *(To pause, I can take a deep breath, count to 10, or ask, “Is this worth it?”)*
4. What are two positive things that could result from pausing in this situation? *(Answers will vary.)*

2 Academic and Domain-Specific Vocabulary Lists

headsup.scholastic.com/pushingpause/article

The vocabulary words below are drawn from the “Pushing Pause” student article and work sheet. This vocabulary can be previewed with students prior to reading or reinforced with students afterward. Encourage students to incorporate these words into their writing and discussion of the “Pushing Pause” article and work sheet.

Leveled definitions are provided for grades 6–8 and 9–12. Unless otherwise noted, all definitions below are sourced or adapted from:

- Grades 6–8: *Scholastic Children’s Dictionary*
- Grades 9–12: *Webster’s II New College Dictionary*

Suggested methods of learning and reinforcement:

Students can construct understanding by drawing the words’ definitions; organizing concept maps that include word parts, synonyms, antonyms, and examples; composing memory-aiding songs that explain the words or use them in a meaningful context; and employing the words to create newspaper articles, stories, or poems.

Grades 6–8: Vocabulary From “Pushing Pause” (article and work sheet)

- **addiction** (*noun*): a chronic, relapsing disease characterized by compulsive drug seeking and abuse and by long-lasting chemical changes in the brain *(Source: National Institute on Drug Abuse)*
- **consequence** (*noun*): the result of an action
- **developmental** (*adjective*): relating to the growth or development of someone or something *(Example: The developmental years typically refer to birth through young adulthood, during which time the brain undergoes high levels of growth.)*
- **drive** (*noun*): a strong, motivating tendency or instinct that prompts activity toward a particular end
- **emotion** (*noun*): a strong feeling, such as happiness, love, anger, or grief
- **impact** (*noun*): the effect that something has on a person or a thing

● **impulse** (*noun*): a sudden desire to do something

Related

- **impulsive** (*adjective*): likely to act without thinking about it first
- **impulsivity** (*noun*): a type of behavior characterized by acting without thinking about it first

● **income** (*noun*): the money that someone earns or receives regularly

● **limbic system** (*noun*): a set of brain structures that generates our feelings, emotions, and motivations. The limbic system is also important in learning and memory. (Source: *National Institute on Drug Abuse*)

● **outcome** (*noun*): the result of something

● **prefrontal cortex** (*noun*): a region of the brain that plays a role in complex thought, emotion, and behavior

● **process** (*verb*): to handle, prepare, or change by a series of steps

● **rational** (*adjective*): sensible and logical (example: *rational decision*); calm, reasonable, and sane (example: *rational behavior*)

● **risk**

- (*noun*): the possibility that something bad (such as harm or loss) will happen
- (*verb*): to take the chance of something bad (such as harm or loss) happening

● **scenario** (*noun*): an outline of a series of events that might happen in a particular situation

● **self-control** (*noun*): the ability to hold back one’s own impulses, feelings, and behavior

Related

- **control** (*noun*): to make something or someone do what you want

● **strategy** (*noun*): a clever or careful plan for achieving a goal

● **tendency** (*noun*): being likely to demonstrate a particular type of behavior

Grades 9–12: Vocabulary From “Pushing Pause” (article and work sheet)

● **addiction** (*noun*): a chronic, relapsing disease characterized by compulsive drug seeking and abuse and by long-lasting chemical changes in the brain (Source: *National Institute on Drug Abuse*)

● **consequence** (*noun*): that which logically or naturally follows from an action or condition

● **developmental** (*adjective*): relating to the progression from earlier to later stages of individual growth or maturation (Example: The *developmental years* typically refer to birth through young adulthood, during which time the brain undergoes high levels of growth.)

● **drive** (*noun*): a strong, motivating tendency or instinct that prompts activity toward a particular end

● **emotion** (*noun*): a complex, usually strong subjective response, such as love or fear

Related

- **subjective** (*adjective*): based on feelings or opinions rather than facts (Source: *Merriam Webster Dictionary*)

● **impact** (*noun*): the effect or impression of one thing upon another

● **impulse** (*noun*): a sudden spontaneous urge or inclination; a driving force

Related

- **impulsive** (*adjective*): likely to act based on a sudden spontaneous urge or inclination
- **impulsivity** (*noun*): a type of behavior characterized by acting based on a sudden spontaneous urge or inclination

● **income** (*noun*): money or its equivalent received during a time period in exchange for labor or services, from the sale of goods or property, or as profit from financial investments

● **limbic system** (*noun*): a set of brain structures that generates our feelings, emotions, and motivations. It is also important in learning and memory. (Source: *National Institute on Drug Abuse*)

● **outcome** (*noun*): a final consequence

● **prefrontal cortex** (*noun*): a region in the forward part of the frontal lobe of the brain that plays a role in complex thought, emotion, and behavior

● **process** (*verb*): to handle, prepare, or change by a series of steps

● **rational** (*adjective*): having or exercising the ability to reason; sane

● **risk**

- (*noun*): the possibility of suffering harm or loss
- (*verb*): to expose to the chance of loss or damage

● **scenario** (*noun*): an outline of a hypothesized chain of events that might happen in a particular situation

● **self-control** (*noun*): control of one’s feelings, desires, or actions by one’s own will

Related

- **will** (*noun*): the mental faculty by which one deliberately chooses or decides on a course of action

● **strategy** (*noun*): a clever or careful plan for achieving a goal

● **tendency** (*noun*): a demonstrated inclination to think, act, or behave in a certain way

3 Writing Prompts for “Pushing Pause”

headsup.scholastic.com/pushingpause/article

To encourage and assess close reading of the student article “Pushing Pause,” use the following writing prompts for quick five-minute “free-writes” of a few sentences each. Students should be sure to include evidence from the text in their responses.

Grades 6–8

● **Skill: Author’s Purpose**

Analyze the author’s purpose in writing the article “Pushing Pause.” What impact might the author be aiming to have on both individuals and communities?

● **Skill: Text Features**

Interpret the “Crime” and “Wealth” graphs in the article “Pushing Pause,” and explain how the graphs’ findings support the article’s message.

● **Skill: Analysis**

Analyze the role of impulsivity in the daily lives of teens. Use details from the “Pushing Pause” article to include a pro and con of impulsivity in your answer.

● **Skill: Inference**

How might teen life be different if there was not an evolutionary tendency toward impulsivity? Support your answer with details from the “Pushing Pause” article.

Grades 9–10

● **Skill: Author’s Purpose**

Analyze the author’s purpose in including the “Crime” and “Wealth” graphs in the “Pushing Pause” article. How do the graphs support the main text?

● **Skill: Text Features**

How does the “Pausing Pays Off” diagram at the bottom of the article support and expand on the article’s main message? Use details from both the diagram and the article to support your claim.

● **Skill: Translate Quantitative Information**

Translate into words the “Crime” and “Wealth” graphs from the “Pushing Pause” article, and explain how the graphs’ findings on the impacts of self-control support the article’s message.

● **Skill: Inference**

How might society be different if there were not an evolutionary tendency in teens toward impulsivity? Use details from the graphs and text of “Pushing Pause” to support your inference.

Grades 11–12

● **Skill: Author’s Purpose**

Analyze the author’s purpose in incorporating the findings of long-term scientific studies, including the one conducted in Dunedin, New Zealand, into the “Pushing Pause” article. In addition, identify what supporting information could have been incorporated to provide a more complete explanation.

● **Skill: Argument**

You have been assigned to mentor a freshman, and you want to help this student have a successful high school experience: fun, but not dangerous. Using information from “Pushing Pause,” craft an argument appropriate to your audience that encourages developing the ability to pause.

● **Skill: Inference**

Why might self-control in the early years of life have an impact on adult outcomes? Use details from the graphs and text of “Pushing Pause” to support your inference.

4 Paired-Text Reading Suggestions for “Pushing Pause”

headsup.scholastic.com/pushingpause/article

Deepen student learning of “Pushing Pause” with the following paired-text reading suggestions and prompts for writing and discussion.

**INFORMATIONAL TEXT:
SYNAPTIC PRUNING/DECISION MAKING**

● **Materials:** The article “ ‘Wiring’ Your Brain” (pair with “Pushing Pause”):

headsup.scholastic.com/students/wiring-your-brain

● **Writing Prompts**

Grades 6–8

– Compare and contrast the two articles “Pushing Pause” and “ ‘Wiring’ Your Brain.” Identify the common themes that connect the two articles.

– Using evidence from both “Pushing Pause” and “ ‘Wiring’ Your Brain,” summarize how people can “train their brains” and what benefits can result from this training.

Grades 9–10

– Do the articles “Pushing Pause” and “ ‘Wiring’ Your Brain” support or contradict each other? Use evidence to support your claim.

– Compare and contrast the time lines from the bottom of “Pushing Pause” and “ ‘Wiring’ Your Brain.”

- Using evidence from both “Pushing Pause” and “ ‘Wiring’ Your Brain,” evaluate the truth of this claim: “You’re born with certain tendencies, but you can alter them.”
- Synthesizing evidence from both “Pushing Pause” and “ ‘Wiring’ Your Brain,” articulate how people can “train their brains” and how this training can benefit themselves as well as society.

Grades 11-12

- How do the “Pushing Pause” and “ ‘Wiring’ Your Brain” articles integrate illustrations to support their central ideas? How do the structures of the articles organize information to communicate an argument?
- Using evidence from both “Pushing Pause” and “ ‘Wiring’ Your Brain,” evaluate the truth of this claim: “You’re born a certain way, and you can’t change.”
- Synthesizing evidence from both “Pushing Pause” and “ ‘Wiring’ Your Brain,” articulate how people can “train their brains.” Why is this ability significant for individuals and communities?

**INFORMATIONAL TEXT:
THE BRAIN’S REWARD SYSTEM/OVERLOAD**

• **Materials:** The article “The Awesomely Evolved Human Brain” (pair with “Pushing Pause”) headsup.scholastic.com/students/awesomely-evolved-human-brain

• **Writing Prompts**

- **Grades 6–8:** How does the information about evolution in “The Awesomely Evolved Human Brain” enhance your understanding of teen impulsivity in “Pushing Pause”?
- **Grades 9–10:** Cite evidence from “The Awesomely Evolved Human Brain” that supports the information about the dual role impulsivity plays for teens in “Pushing Pause.”
- **Grades 11–12:** How does “The Awesomely Evolved Human Brain” illuminate the characterization of teen impulsivity in “Pushing Pause”?

**INFORMATIONAL TEXT:
TOUR OF THE BRAIN**

• **Materials:** Simon, Seymour. *The Brain: Our Nervous System*. New York: Scholastic Inc., by arrangement with HarperCollins Children’s Books, 1997, 2006. Recommended for grades 6–8, this book features clearly written text accompanied by stunning digital images.

• **Writing Prompt for Grades 6–8:** Explain how different areas of the brain work together to enable a person to quickly pull a hand back from a hot surface. How is this similar or different from the partnership between the limbic system and the prefrontal cortex described in the article “Pushing Pause”?

**PUBLIC SERVICE ANNOUNCEMENT:
TEENS AGAINST DRUGS**

• **Materials:**

- **Background for Teachers:** headsup.scholastic.com/teenbeing
- **Video PSA for Grades 6–8:** headsup.scholastic.com/external_youtube_MS
- **Video PSA for Grades 9–12:** headsup.scholastic.com/external_youtube_HS

• **Writing Prompts**

- **Grades 6–8:** Using evidence from the PSA, explain how having a personal slogan can help a teen pause and make healthy decisions. Come up with your own personal slogan.
- **Grades 9–10:** How does this antidrug PSA support the idea of taking a moment to pause and think before making a decision?
- **Grades 11–12:** Critique the PSA using details from it. Articulate to what degree it effectively supports teens in making healthy decisions about drugs.

**REAL-WORLD NARRATIVE:
IMPULSIVE TEEN DECISIONS**

• **Materials:** Hugel, Bob. *I Did It Without Thinking: True Stories About Impulsive Decisions That Changed Lives*. New York: Scholastic Inc., 2008. Recommended for grades 7–12, this book of true stories covers teen-relevant topics, including abuse of drugs and alcohol.

• **Writing Prompt for Grades 7–12:** Select a narrative about a decision from *I Did It Without Thinking*. What emotions were at play in the decision-making process? What rational thinking could have been applied for a different outcome?

5 Grades 6–12 Standards Charts (CCSS & NGSS)
headsup.scholastic.com/pushingpause/lesson

The “Pushing Pause” article, lesson plan, work sheet, and Additional Tools document support Common Core State Standards (Literacy in Science, corestandards.org/ELA-Literacy/RST/introduction) and the Next Generation Science Standards (nextgenscience.org/next-generation-science-standards). Supported standards are delineated by grade band in the tables below.

Common Core State Standards: Literacy in Science		
Grades 6–8	Grades 9–10	Grades 11–12
CCSS.ELA-Literacy.RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.	CCSS.ELA-Literacy.RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	CCSS.ELA-Literacy.RST.11-12.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
CCSS.ELA-Literacy.RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.	CCSS.ELA-Literacy.RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.	CCSS.ELA-Literacy.RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
CCSS.ELA-Literacy.RST.6-8.5 Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.	CCSS.ELA-Literacy.RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., <i>force, friction, reaction force, energy</i>).	CCSS.ELA-Literacy.RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
CCSS.ELA-Literacy.RST.6-8.6 Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.	CCSS.ELA-Literacy.RST.9-10.6 Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.	CCSS.ELA-Literacy.RST.11-12.6 Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
CCSS.ELA-Literacy.RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	CCSS.ELA-Literacy.RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	CCSS.ELA-Literacy.RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
	CCSS.ELA-Literacy.RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.	CCSS.ELA-Literacy.RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
		CCSS.ELA-Literacy.RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Next Generation Science Standards: Science and Engineering Practices

Grades 6–8

Grades 9–12

Constructing Explanations and Designing Solutions:

- Apply scientific ideas to construct an explanation for real-world phenomena, examples, or events.
- Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students’ own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

Constructing Explanations and Designing Solutions:

- Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students’ own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

Engaging in Argument From Evidence:

- Use an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

Obtaining, Evaluating, and Communicating Information:

- Communicate scientific information (e.g., about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (including orally, graphically, textually, and mathematically).

Analyzing and Interpreting Data:

- Analyze displays of data to identify linear and nonlinear relationships.
- Analyze and interpret data to determine similarities and differences in findings.