Why have opioid overdoses increased? (Synthetic or man-made opioids like fentanyl have come into the country illegally. These opioids are very powerful. Even a very small amount can cause someone to stop breathing.)

What should a person do if they are prescribed an opioid? (Answers may include: ask for non-opioid treatments; share with their doctor any medical history that may make them more vulnerable to addiction, such as mental illness; follow the doctor’s directions exactly; only take the drugs to treat pain.)

How can medication help someone who is experiencing an opioid overdose? (If someone is experiencing an overdose, giving them a dose of naloxone can reverse the effects and save their life.)

Writing Prompts

Grades 6–8 Explain why prescription opioids pose health risks.

Grades 9–10 Explain how a person might increase their risk of health dangers associated with both prescription opioid medications and illegal opioids. Then, explain how they could reduce their risk.

Grades 11–12 What are some actions that individuals and medical professionals could take to help control the misuse of prescription opioid medications?

Paired Reading

“Sculpting Your Brain: The Science of Addiction” (teens.drugabuse.gov/blog/post/sculpting-your-brain-science-addiction)

This paired text explains how using drugs can affect brain development.

Writing Prompt Explain why teens are vulnerable to addiction. Use supporting text evidence from “Sculpting Your Brain: The Science of Addiction” and “Opioids: What You Need to Know.”

Activity Sheet Answers

1) Dopamine is a chemical that helps signals pass between nerve cells in the brain. Dopamine levels rise because of a pleasurable experience. This helps your brain remember that activity to repeat it.

2) Activities like eating chocolate cause dopamine levels to rise, which makes you want to repeat it. But drugs cause a much greater increase in dopamine. Over time, the brain craves the boost of dopamine it receives from drugs.

3) A person who is addicted to drugs has experienced changes in the way their brain works. The changes make the person crave drugs so that they continue to use them even if they experience negative consequences.

4) Answers will vary but may include: Medications help a person stop misusing opioids, which can restore balance to brain circuits. They may change the way that dopamine is processed in the brain so that the person experiences fewer drug cravings.

Subject Areas

• Science Literacy
• English Language Arts
• Health/Life Skills

Standards

Common Core State Standards (CCSS)

RST.6-8.1/RST.9-10.1
• Cite specific textual evidence to support analysis of science and technical texts

Next Generation Science Standards (NGSS) Practices

• Obtaining, evaluating, and communicating information

Crosscutting Concept

• Cause and effect: Mechanism and explanation

Core Idea

• MS-LS1.A/HS-LS1.A Structure and Function
• MS-LS1.D/HS-LS1.D Information Processing

National Council for the Social Studies (NCSS)

• 8. Science, Technology, and Society

Additional Lesson Resources

VOCABULARY SUPPORT
Download terms and definitions to support the article at scholastic.com/headsup/opioidsvocab.

More Lessons on Drugs and Alcohol:
• headsup.scholastic.com/teachers
• teens.drugabuse.gov

NIH National Institute on Drug Abuse

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What Causes Addiction?

**DIRECTIONS:** Read the text passage and study the diagrams below to learn how drugs such as opioids change the way the brain works. Then, use the information along with what you learned in the article to answer the questions that follow.

**DRUGS AND THE BRAIN**

Drugs affect the way signals are sent in the brain’s reward circuit. This network of structures is activated when you do something pleasurable.

Dopamine is a chemical that helps signals pass between nerve cells in the brain. When you do something enjoyable, such as eat chocolate, dopamine levels increase (see top diagram). Receptors detect the rise in dopamine. This helps your brain remember the pleasurable behavior so that you will most likely want to do it again.

Using drugs, including opioids, causes dopamine levels to rise much higher than with other enjoyable activities (see bottom diagram). When drugs are misused over time, the brain becomes used to the boost of dopamine that drugs deliver. This leads to powerful cravings that make it difficult to stop. The state of being ruled by these cravings is addiction.

**THINK IT THROUGH**

Use a separate sheet of paper to record your answers to the questions below.

1. What is dopamine? What role does it play in the brain?
2. Why are drugs more addictive than eating chocolate?
3. Explain why a person who is addicted to a drug might continue to use it even if they experience negative consequences?
4. The article “Opioids: What You Need to Know” explained that medications can help treat addiction. Based on what you learned above, how might these medications work? Explain your answer.

For more information, visit [scholastic.com/headsup](http://scholastic.com/headsup).

From Scholastic and the scientists of the National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services