



Drugs and the Teen Brain

As a teacher, you know that teens are at a critical time of development. The brain doesn't become fully developed until the mid-20s. This fact makes teens especially susceptible to the harmful effects of drugs and alcohol, putting them at a greater risk for addiction as well as damage to the brain. By sharing the article "Drugs and the Teen Brain" and teaching this lesson, you will help students learn how their brain develops and why using drugs and alcohol is especially risky.

Critical-Thinking Questions

1 Explain how your brain changes as you grow. What types of actions can have a positive effect on your brain? *Answers may include that as you grow older, you develop synapses (connections between neurons) that allow you to learn. Learning new skills can build new connections that strengthen the brain.*

2 Explain the purpose of the prefrontal cortex and the limbic system in the brain. Explain why an underdeveloped prefrontal cortex might affect a teen's ability to make decisions. *The prefrontal cortex is the area of the brain that is involved in critical thinking and decision making. The limbic system is involved in emotions and rewards. Teens rely on their limbic system since their prefrontal cortex is not fully developed. Therefore, they often make decisions based on instant gratification and do not fully weigh consequences.*

3 Why are teens more at risk for becoming addicted to drugs than adults? Support your answer with text evidence. *Addiction is linked to dopamine, which is released during pleasurable experiences. Drugs cause a surge of dopamine to be released. With repeated drug use, the brain seeks drugs over healthier rewards. Teens are more at risk because the limbic system is very sensitive to the effects of dopamine.*

Writing Prompts

Grades 6–8 Explain why teens are more likely to binge drink than adults.

Grades 9–10 The legal drinking age is 21. Do you think teens should be allowed to drink legally? Explain why or why not.

Grades 11–12 Parts of the teen brain are not yet fully developed. Explain why this can be harmful.

Paired Reading

"Addiction Is a Disease"
(<https://teens.drugabuse.gov/blog/post/addiction-disease>)

This article describes how drugs can cause brain changes that lead to addiction.

Writing Prompt Cite text evidence from the article "Addiction Is a Disease" to describe how drug addiction harms the brain.

Activity Sheet Answers

Multiple choice 1. c; 2. b; 3. d; 4. True; 5. d; 6. True; 7. a; 8. True.

"Now Try This" 1. Answers may include that the limbic system (involved in rewards and emotions) may cause teens to make risky decisions that give immediate rewards. Teens' limbic systems are also sensitive to dopamine, which may cause them to crave drugs more than adults. Thinking through consequences allows you to see the positives and negatives of a situation, which might help you to make good decisions. **2.** Answers may include that the teen brain is still in development, so exposure to drugs can negatively affect the way the brain functions. Teen drug use can cause memory and learning problems that last through adulthood.

Subject Areas

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

Standards

CCSS

RST.6-8.1 / RST.9-10.1

- Cite specific textual evidence to support analysis of science and technical texts

W.6-8.1 / W.9-10.1

- Write arguments to support claims using valid reasoning and relevant and sufficient evidence

NGSS

MS-LS1.A / HS-LS1.A

- Structure and function

MS-LS1.D / HS-LS1.D

- Information processing

NGSS Practices

- Obtaining, evaluating, and communicating information/engaging in argument from evidence

NCES

- Personal health
- Science and technology in society/science and technology in local, national, and global challenges

NCSS

- 8. Science, technology, and society

Additional Lesson Resources

- Vocabulary List: scholastic.com/headsup/drugsandtheteenbrain
- headsup.scholastic.com/teachers
- teens.drugabuse.gov



What Do You Know About the Teen Brain and Drugs?

Answer these questions to test your knowledge.



- The brains of teenagers are:**
 - larger than those of adults
 - the same as adult brains
 - not yet fully developed
 - made up of different parts than those of adults
- The limbic system of the brain is involved mainly with:**
 - decision making
 - emotions
 - problem solving
 - balance
- The last part of the brain to fully develop is:**
 - the emotion center
 - the part that controls breathing
 - the reward center
 - the part involved in critical thinking
- Teen brains are more sensitive to drug use than adult brains.**

True

False
- Which of the following statements is true about the brain's prefrontal cortex?**
 - It helps people think through their actions.
 - It can be damaged by drug use.
 - It is used in decision making.
 - All of the above.
- Drug use can harm the brain.**

True

False
- Dopamine is:**
 - a natural chemical in the brain linked to positive feelings
 - a harmful chemical found only in drugs
 - an area of the brain involved in emotions
 - a natural chemical in the brain that forces you to take risks
- The connections between neurons in your brain can be affected by drug use.**

True

False

NOW TRY THIS

Answer the following questions on a separate piece of paper after reading "Drugs and the Teen Brain."

- How might the limbic system make teens more vulnerable to drugs? Tell how thinking through consequences might keep you safe.
- Explain how teen drug use could impact a person's entire life. Use evidence from the text to support your answer.

For more information, visit [scholastic.com/headsup](https://www.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