



Youth Brain Development

Affects of Substance Use

GRADES 9–10

60 MINUTES

Lesson Overview

This lesson explores how the youth brain develops and interacts with substances during development. Students explore activities and behaviors during adolescent development and how using substances can impact brain development. Through discussion and reflection, they build an understanding of how the youth brain interacts differently with substances than the adult brain. The lesson emphasizes critical thinking and responsible decision-making.

Essential Questions

- What is substance use disorder?
- How does substance use affect the brain and brain development?
- What can I do if I or someone I know has a substance use disorder?

Student Learning Goals

- I can define substance use disorder.
- I can explain how substances affect the youth brain and impact brain development.
- I can name at least one way to seek support for someone who has a substance use disorder.

Related Standards

Health Standards

HS.SUB.6 Analyze the relationship between substance use, misuse, abuse and other health risks, including unintentional injuries, violence, self-harm, suicide, and sexual risk behaviors.

HS.SUB.7 Analyze reasons why individuals use or do not use alcohol, marijuana/cannabis, tobacco, and other drugs, including the influence of family, peer, school, community, culture, and social norms on personal values, beliefs, and behaviors.

Transformative SEL Standards

Standard 4: Relationship Skills & Collaborative Problem-Solving Establish and maintain healthy, supportive relationships and effectively navigate diverse settings in order to collaboratively solve problems.

Standard 5: Responsible Decision-Making & Curiosity Demonstrate curiosity and analysis of oneself and society in order to make caring choices that impact personal, social, and collective well-being across situations and environments.

Lesson Materials

- Slide deck
- Facilitator notes
- Video projector and speakers
- [Stages of Healthy Adolescent Development](#) handout
- [Teen Brain Development](#) video
- [Why are drugs so hard to quit?](#) video

Lesson Plan

Preparation

This lesson allows students to engage collaboratively with their peers on important issues adolescents face. Specifically, students learn and reflect on human development and substance use. It is important to recognize that people in the school, class and community are affected by substance use and acknowledge that students are not alone. Establish norms and expectations to support students safely engaging in these conversations and activities. Before the lesson, revisit the norms and expectations to ground the conversation and ensure a safe space for all students, including a reminder about confidentiality. You may also want to remind students to share only their own information and that they are not required to share anything if they do not want to.

Print out the Stages of Healthy Development handout.

Learning Sequence

Share the essential questions and learning goals with students. Remind students there is no singular correct answer.

Activity 1. Activating Schema: Quick Write | 15 Minutes

The lesson connects students' beliefs about adolescent development to the stages of adolescent development. In this warm-up, students explore the information they believe and validate or question their beliefs.

1. Ask students to respond to the following questions in writing:
 - How does it feel to be your age? (Slide 4)
 - After a few minutes, how does that differ from when you were younger? (Slide 5)
 - After a couple more minutes, how do you think it will differ from when you are an adult? (Slide 6)
2. Ask students to share some of the similarities and differences among the stages in life.

3. Share the [Stages of Healthy Adolescent Development](#) handout with students. Have students highlight or underline what stands out (Slide 7).
4. Point out a few key characteristics of middle adolescence (Slide 8), such as
 - stress impacts cognition
 - understanding cause–effect relationships
 - peers are important and may influence decisions
 - risk-taking may occur

Activity 2. Introduce Substance Use Spectrum | 5 Minutes

Allow students to review the substance use spectrum and consider how the typical characteristics of adolescence may contribute to choices.

1. Share Slide 9 with the substance use spectrum. Review each level of the spectrum.
2. Working in pairs or small groups, have students look at the characteristics of adolescents and consider how some behaviors may contribute to moving back and forth on the spectrum over time.
3. Have students share some observations and summarize the conversation.

Activity 3. Explore the Youth Brain | 20 Minutes

Provide information on youth brain development and support students in understanding how the brain develops.

1. Working in the same pairs or small groups, have students discuss everything their brain does for them (Slide 10).
2. Invite students to share their thoughts. Stress that the brain does more than regulate the body (Slide 11).
3. Share Slides 12–16. For each slide, have students indicate if they like or dislike the content by moving from one side of the room to another. For example, if they like it, stand on the left; if they dislike it, stand on the right. Allow students to stand in the middle or not entirely on one side to reflect their thoughts.
4. After reviewing the slides, have the students return to their seats and ask them what they observed (Slide 16). Observations may include the fact that not everyone agrees, sometimes students follow peers or some decisions are hard to make. Possible questions you can ask may include
 - Did you notice yourself feeling influenced by others in the room when choosing a side? Why or why not?
 - What roles do emotions, social pressure and personal values play in how we make choices?
 - What role do brain development and decision-making play in using substances?

- How do you think adolescent brain development impacts the way decisions are made, especially when it comes to substance use?
- 5. Have students write what they already know about teen brain development (Slide 17). Have several students share their ideas.
- 6. View the National Institute on Drug Abuse [Brain Development](#) video (Slide 18). As students watch, ask them to validate or revise what they know about teen brain development.
- 7. Invite students to share what additional information they learned.
- 8. Share Slide 19 and review brain basics, including how the brain communicates with the body.
- 9. Share Slide 20 and review how the youth brain differs from the adult brain.

Activity 4. Define Substance Use Disorder | 15 Minutes

1. Ask students in their pairs or small groups to jot down what comes to mind when they hear substance use disorder (SUD). They should brainstorm SUD words or phrases. (Slide 21)
2. Review key vocabulary on Slide 22. Vocabulary includes tolerance, withdrawal, dependency and substance use disorder.
3. Watch the National Institute on Drug Abuse Video [Why are drugs so hard to quit?](#) (Slide 23)
4. Share Slides 24–25 to review some SUD facts:
 - SUD, as a recognized medical brain disorder, refers to the use of illegal substances (such as marijuana, heroin, cocaine or methamphetamine) or the misuse of legal substances (such as alcohol, nicotine or prescription medicines).
(<https://www.hopkinsmedicine.org/health/conditions-and-diseases/substance-abuse-chemical-dependency>)
 - In 2022, more than one in six Americans aged 12 or older reported experiencing a SUD.
(<https://www.cdc.gov/overdose-prevention/treatment/index.html>)
 - SUDs can range in severity from mild to severe and can affect people of any race, gender, income level or social class. (<https://www.cdc.gov/overdose-prevention/treatment/index.html>)
 - SUD is a disease, not a character flaw. People experiencing SUDs have trouble controlling their drug use even though they know drugs are harmful.
(<https://www.cdc.gov/overdose-prevention/treatment/index.html>)
5. Review the substance use spectrum (Slide 27) and ask students to consider the characteristics of youth development and brain development:
 - How can this information influence your choices?
 - How can it help you to support your peers?
 - How do these facts provide the knowledge you need to make better-informed decisions?

6. Share Slide 28 and let students know that support is available if they or someone they know has an SUD. Add any local support systems to this slide or an additional slide. As the [Why are Drugs so Hard to Quit?](#) video states, people can be helped with the right support.

Activity 5. Wrap-up | 5 Minutes

1. Review key ideas on Slide 29.
2. Provide students with the opportunity to complete exit tickets using the statements below. Collect exit tickets.

Formative Assessment Opportunities

Listen for students who need follow-up support (for themselves, peers or family members) or have misunderstandings based on bias or the stigma associated with SUD.

Exit ticket

- In your own words, define SUD.
- List some ways that substances affect the developing brain.
- Name at least one way you can seek support for someone who has an SUD.

Additional Resources

- [Teen Brain Development, Teen Behavior and Preventing Drug Use](#): This article for parents explains the basics of teen brain development and the effects of substance use on the developing brain.