



LESSON PLAN: 01

THE SCIENCE BEHIND SUBSTANCE USE,
ADDICTION, AND RECOVERY

THE FIRST DAY

A FOCUS ON THE BEGINNING

DESCRIPTION & OVERVIEW

“I wish they told me because alcoholism and addiction ran in my family, that I was forty times more likely to suffer from it. I wish they told me that ninety percent of all addictions begin in the teenage years.”

~ CHRIS HERREN ~

DESCRIPTION

This lesson will introduce students to the brain science of addiction and how the adolescent brain is especially susceptible.

OVERVIEW

The disease of addiction does not discriminate. It can happen to any one of us, regardless of gender, race, religion, or any other characteristic that makes us who we are as human beings. Substance use disorder (SUD), which is the clinical or medical term for addiction involving alcohol or drugs, is defined by a set of symptoms that indicate a problematic pattern of substance use leading to clinically significant impairment -- including health problems, disability, and failure to meet major responsibilities at work, school, or home -- that occurs within a 12-month period.¹

The disorder may be mild, moderate or severe. It changes the brain's chemistry, causing feelings of distress in the absence of the substance, and may involve strong cravings.² Substance use disorder is both preventable and treatable. In many cases, recovery requires long-term physical, mental, emotional and social support, but most people can and do recover.

Adolescents are especially susceptible to addiction, as adolescence is a critical time of rapid and intense physical development, including brain development. Substance use can impede the healthy growth and development of young brains, which undergo dramatic change well into early adulthood. The parts of the brain that develop earlier in adolescence are those associated with risk taking, whereas the parts that fully develop later are those involved in judgment and decision-making. Adolescence is also when young people experiment with different behaviors to have fun, relieve boredom, or try to cope with stress or other emotional or social problems in their lives. Therefore, a younger person is more apt to engage in risky behavior without the benefits of adult judgment and decision-making qualities that can help protect them from harming themselves. Understanding these normal developmental patterns can help both young people and adults shift from blaming and shaming around substance use to protecting young people from it by changing their environments so that they have less access to addictive substances and less exposure to people who are using.

Knowledge is power. Educating ourselves on the science behind addiction--how our brains work and the factors that increase the risk of substance use and addiction, is a crucial first step each of us can take towards leading healthier lives and reaching our full potential.

Wherever you currently stand on the spectrum of nicotine, alcohol, or drug use is only about today--not the final destination. Maybe you are a teenager who was able on that "First Day" to not drink or smoke even while some of your friends and classmates were beginning to experiment. Maybe your "First Day" started you down the road to your current practice of binge drinking on weekends, which you see as "no big deal." Or maybe your "First Day" has led you to smoke, drink, or use drugs or engage in other self-harming behaviors in a way that now controls your choices, your actions, your life. Wherever you are today is not the point. The point is that there are always steps you can take to get the help you need to move towards a healthier life. Educating yourself about the science of substance use and addiction is an important first step on that path.

ESSENTIAL QUESTIONS

- What is the science behind substance use and the disease of addiction, especially as it relates to the developing adolescent brain?
- What are the factors that might contribute to substance use and the development of addiction?
- What are some approaches to treatment and recovery for those with addiction?

ENDURING UNDERSTANDINGS

- The science behind how our brains work--especially during our adolescent years--helps explain how substance use disorder develops.
- Educating ourselves about the brain science of addiction provides us with essential information to help inform our choices and actions around both substance use as well as recovery from the disease of addiction.
- Gaining an awareness about the physical, emotional, and environmental factors in our lives that increase the risk of substance use can help us better cope with those issues before they lead us toward addiction.
- For people who have addiction, there is no "one size fits all" treatment plan or path to recovery; rather, each individual is unique and the specific approach that might work for her/him can vary.
- Relapse is not a failure that erases a person's efforts to recover from addiction, but rather, it is a normal part of the larger treatment and recovery process.

TIME

This lesson has been designed to be completed within one class period. Additional extension and/or homework activities are provided at the end of the lesson.

MATERIALS

Student copies of the Transcript and Handouts 1 & 2

Recommended film excerpt from *The First Day*

ACTIVITIES

PRE-ACTIVITY: SOCIAL CONTRACT

Prior to implementing this series of lessons, it is critical that you establish some form of social contract (norms of behavior) within your class to ensure your students will agree to adhere to important guidelines about attitudes and behaviors when engaging in discussions with one another. Setting norms around treating each other with respect, confidentiality and truly listening to your classmates, regardless of whether you agree or disagree with each other's point of view, is essential in any classroom. There are numerous examples available to use as models if necessary, but allowing your students to discuss and frame their own contract is often a very empowering exercise.

Given the emotional and personal nature of these lessons, it is absolutely essential to spend a few minutes at the start of class to renew these agreements. We highly recommend that the guidelines you and your students generate come directly from your students, as opposed to being directed by the teacher. Students need to share ownership in creating guidelines. In addition, it is encouraged that the list of norms you create together be written down and displayed prominently in the classroom for easy reference and review.

Finally, it is necessary for students to be aware that, as an educator, you are a mandatory reporter in cases where students reveal that they have been threatened, or may be a threat to themselves or others. Knowing this, students can then make an informed decision about whether and when to share their personal information. Refer to the Educator Toolkit for a more in-depth discussion about disclosure and confidentiality.

PART ONE: ADDICTION AND THE TEENAGE BRAIN

1. To provide students with some context, begin the lesson by having a student volunteer read the Overview, above, aloud to the class.
2. Distribute copies of **Handout 1: Substance Use Disorder and the Brain – Vocabulary and Fact Sheet**. Go over the four questions they will be considering as they review the fact sheet:
 - What is one statistic or piece of information from the handout that strikes you, and why?
 - What is one other piece of information about which you had been unaware?
 - What is one other piece of information that in some way relates to your own life?
 - In what way might the information you learned from this lesson affect how you think about substance use among teens or people with addiction?
3. Give the students time to individually review the handout and respond to the questions. Then, in pairs or groups of three, have them share their responses to the questions with one another.
4. Return to a short full group debrief. Take comments from some of the pairs.

PART TWO: RISK FACTORS FOR SUBSTANCE USE AND DEVELOPING ADDICTION

1. Transition from the discussion about the brain science of addiction to educating ourselves about some of the risk factors for substance use and developing addiction. Begin this part of the lesson by showing a video clip from *The First Day* and distribute a copy of the transcript for students to follow along. In this excerpt, Chris makes a critical point about teens' common misconceptions about the profile of a person who is susceptible to the disease of addiction. The images we conjure when we think of addiction are of those who have struggled with severe substance use disorder for years--people on their "worst day." The fact is, most teens don't realize the risk factors for developing an addiction may be present in their lives *right now*.
2. Divide the class into small groups of three to five students. Groups should identify one member to be the note taker.

Distribute a copy of the worksheet, **Handout 2: Factors Influencing Substance Use and the Development of Substance Use Disorder** to each group. Group instructions:

- a. In your group, read aloud the description of one of the four risk factors, above.
- b. Engage in a short discussion about that particular factor, addressing the following questions. Make sure the note taker is capturing the key points raised in the discussion:
 - How important do you believe this factor to be in leading someone to use substances or in developing addiction, and why?
 - In what ways does this factor show up in Chris' story?
 - In what ways do you think adolescents might be especially vulnerable to this risk factor?
- c. Repeat steps "a" and "b" for each of the four risk factors.

PART THREE: JOURNAL REFLECTION

Use the remainder of the class period for private journal reflection, making it clear to students that their journal entries will remain confidential unless the student chooses to share it with the teacher.

Note to Educators: If a student(s) shares their journal writing and reveal substance use, refer to the Educators Toolkit, in particular the section on Establishing a Safe School Culture, for resources and recommendations as to how to process, report and converse with a student who is turning to you as a trusted adult.

Post the following journal prompt on a whiteboard or screen, or distribute copies of the prompt:

- When learning about the disease of addiction and the teenage brain, we use the discipline of scientific study to analyze processes and information with detached curiosity and objectivity. At the same time, we must not forget that behind those statistics and data are real human beings--individuals struggling with painful and at times desperate, dangerous situations. For some of us, those individuals are more than just statistics on a page--they are our friends or family members. And, for some of us, those individuals are ourselves.
- With this in mind, think about the information you have learned today. When you consider the very real consequences of substance use and addiction, what thoughts and feelings come up for you?
- As you reflect and write, think about your own life in light of what you just learned, rather than in relation to the common stereotypes about why people use substances or become addicted. Use this time to write down your private thoughts, feelings and questions.

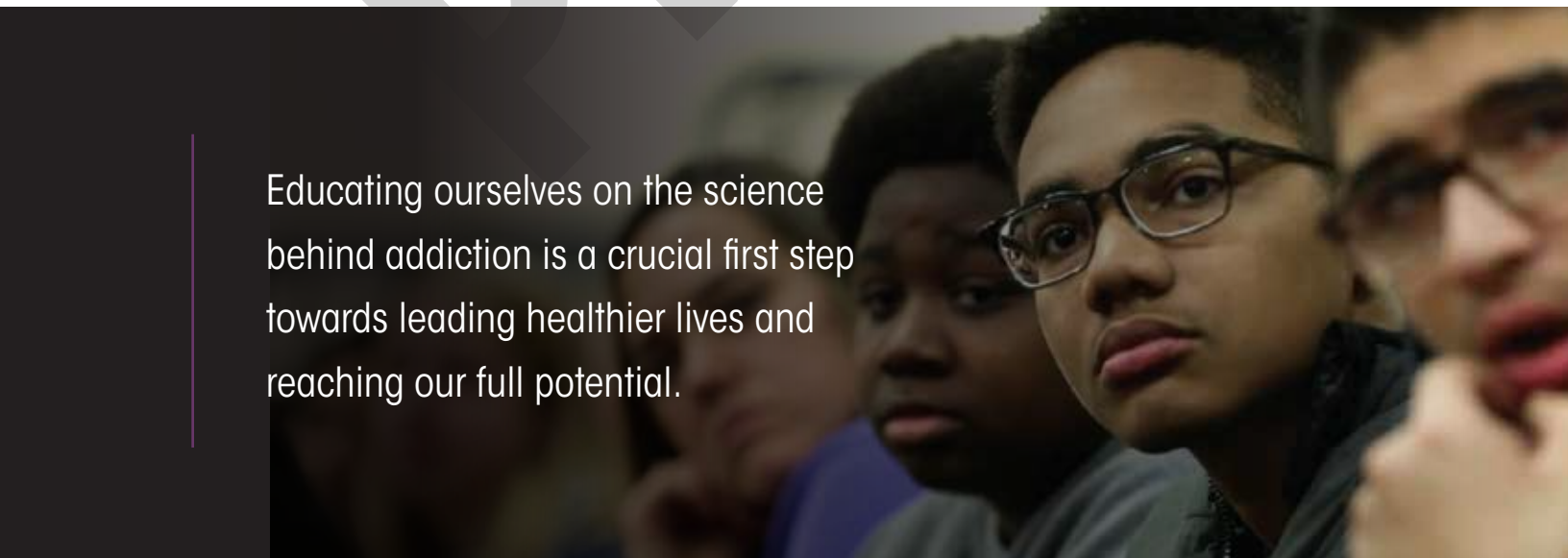
IN-CLASS EXTENSION AND/OR HOMEWORK ACTIVITIES

ACTIVITY: RE-VISITING HANDOUT TWO: FACTORS INFLUENCING SUBSTANCE USE AND THE DEVELOPMENT OF SUBSTANCE USE DISORDER

While the lesson offered time for students in small groups to discuss the factors, risks, and circumstances that may prompt substance use, it is encouraged for students to spend some individual time processing this information, reflecting in writing feelings and thoughts that surfaced during today's lesson, and questions that may have arisen. They can also reflect on other risk factors that they are aware of or have witnessed and how this/these risk factors fit in to the information provided on the National Institute on Drug Abuse for Teens web page.

ACTIVITY: EXPLORING TREATMENTS FOR RECOVERY

1. Begin by establishing a common understanding of the term, *Recovery*. Read **Recovery: Defined** from *Facing Addiction* and the *National Council on Alcoholism and Drug Dependence* (NCADD)
2. Explore different treatment methods and approaches:
 - a. **Treatment Approaches for Drug Addiction** (National Institute on Drug Abuse)
 - b. **Overcoming Drug Addiction** (helpguide.org)
3. Choose one method of treatment to explore in depth. Research the following questions regarding your method:
 - Brief description of the method.
 - What are the statistics around the effectiveness of this treatment?
 - What are the profiles of people who might be strong candidates for this type of treatment, and why?
 - Through research, find one person/case study that found success using this method. Describe that person and your reactions to her/his story.
 - What are the profiles of people for whom this treatment method might not be best suited, and why?
4. If possible, share research findings with classmates to educate one another on several treatment types/methods.



Educating ourselves on the science behind addiction is a crucial first step towards leading healthier lives and reaching our full potential.

LESSON ONE:

THE FIRST DAY (10:21 - 14:10) TRANSCRIPTION

Out of the 15 kids on my high school basketball team that they wrote the book about that would've walked into this assembly like it was a joke, out of the 15 kids that drank out of red solo cups and smoked blunts on Friday and Saturday nights, out of the 15 kids that would've tried to skip this assembly, seven of us became heroin addicts. But our mommies and daddies are doctors and lawyers. We thought we were tough in the woods, cool in the basement.

I never heard one friend say playing beer pong in a basement, cards, quarters, I never heard one friend say in the woods, I can't wait to stick needles in my arms when I get older. I can't wait to overdose, lose my family. I can't wait to ruin my children's lives. That doesn't come up at the high school parties. It's safe to show you pictures of drug addicts and say look how disgusting their life turns out. It's safe to put people with no teeth up on a big board and say look what crystal meth does to the body. That's safe. But nobody asked about the beginning. Six years ago, I would've walked in and I would've told you my story. What I've learned is my story is not enough. That you kids, you deserve way more than just a story. We focus on the worst day and we forget the first day.

We want to tell you stories and show you movies about what drug addiction looks like in the end. If I asked this school to walk into this assembly today with pictures of drug addicts, if I asked you today come prepared with a picture of a drug addict in your pocket, 95% of you would have brought a picture of a person in the final stage of their life because of drug addiction. What? What? You don't think we start somewhere? You think we look like that from day one? Why do you see them as prostitutes and homeless people and not soccer players and shortstops? I don't know if you're aware of this, but I was told that this school district had 18 overdose deaths last year of alumni from these schools.

So let me ask you a question. Do yourself a favor. Go knock on the door of the mom and dad that just buried one of your alums and ask them for a picture of when they were in high school. Say, can I see your son's picture in high school? What, do you think he looks different? That kid drank in the same woods you're drinking in. He's buying liquor from the same liquor stores you buy at. And you think you're different. And you think it will never be you. I just want you to know they thought it would never be them.

HANDOUT: 01

SUBSTANCE USE DISORDER AND THE BRAIN - VOCABULARY & FACT SHEET

“I wish they told me because alcoholism and addiction ran in my family, that I was forty times more likely to suffer from it. I wish they told me that ninety percent of all addictions begin in the teenage years.”

~ CHRIS HERREN³ ~

GLOSSARY OF KEY VOCABULARY AND TERMS⁴

ABSTINENCE - Not using nicotine, alcohol, or drugs.

ADDICTION - The non-clinical way of referring to a substance use disorder that can include compulsive nicotine, alcohol or drug use despite negative consequences.

COMPULSIVE BEHAVIORS - A set of actions that an individual engages in repeatedly in an unhealthy way. This can be substance use, gambling, sex, eating and the use of technological devices such as video games, smart phones, television and the Internet.

OPIOIDS - Opioids are drugs derived from the main chemicals in poppy flowers, and include heroin as well as pain relievers like morphine, codeine, oxycodone (e.g., OxyContin), hydrocodone (e.g., Vicodin) and other even more powerful synthetic opioids like fentanyl that increasingly have been misused in the last decade.

The Centers for Disease Control and Prevention (CDC) reports that, in 2017, an average of 130 Americans died from opioid overdose every day, spurring a national state of emergency.⁵

RECOVERY AND RELAPSE - There are multiple paths to recovery and multiple formulas for success. Some recovery requires a combination of treatment approaches like counseling and support groups as well as medications for addiction treatment, so that both the physical addiction and underlying issues such as trauma and mental health are addressed, while some people with addiction might find success with therapy alone. Additionally, a successful recovery usually entails addressing social factors such as employment, housing, potential triggers for use, and developing new sober habits and relationships.⁶

Recovery can be a long-term, sometimes life-long effort and relapse - returning to using the substance again after withdrawal – can also be a part of most people’s recovery journeys. Relapse rates for substance use disorder are similar to other chronic diseases with physical, behavioral and social components like asthma, diabetes or hypertension.⁷

RISK FACTOR: A biological, psychological or environmental influence that can increase one’s chance of having a disease such as addiction. Examples include inheriting genes associated with addiction, a family history of addiction, exposure to physical or sexual abuse or other trauma, certain personality traits, and co-occurring mental health conditions, such as anxiety and depression.

RISKY SUBSTANCE USE: The use of tobacco, alcohol or other drugs in ways that threaten the health and safety of the user and/or others but do not meet the clinical criteria for a substance disorder. Risky use includes any substance use by minors, drinking in excess of health standards, any use of tobacco/nicotine, misuse of controlled prescription drugs and any illegal drug use.

STIGMA - A set of negative attitudes and beliefs that motivate people to fear and discriminate against other people. Many people do not understand that addiction is a disorder just like other chronic disorders. For this reason, they frequently attach more stigma to it. Stigma, whether perceived or real, often fuels myths and misconceptions, and can influence choices. It can impact attitudes about seeking treatment, reactions from family and friends, behavioral health education and awareness, and the likelihood that someone will not seek or remain in treatment.⁸

SUBSTANCE USE DISORDER - The clinical or medical term for addiction involving alcohol or drugs, is defined by a set of symptoms that indicate a problematic pattern of substance use leading to clinically significant impairment -- including health problems, disability, and failure to meet major responsibilities at work, school, or home -- that occurs within a 12-month period.

FACTS AND STATISTICS

ABOUT ADDICTION AND THE ADOLESCENT BRAIN

50%

Substance use disorder is common to people across gender, race, age and economic status, but **GENETICS PLAY AS MUCH AS A 50%** role in determining whether a person who uses substances will develop a substance use disorder.⁹



9 OUT OF 10 PEOPLE with substance use disorders started using an addictive substance by age 18.¹⁰

70%

70% OF TEENS SAY ANXIETY AND DEPRESSION are major problems among their peers.¹¹

70%

70% OF YOUTH AGES 3 TO 17 have a diagnosed anxiety disorder.¹²



51%

45%



TEENS REPORT

drug addiction (51%) and alcohol use (45%) are major problems among their peers.¹³

15%



AROUND 15% OF EIGHTH-GRADERS, three-in-ten high-school sophomores and four-in-ten seniors report some use of illicit drugs (either illegal or prescription drugs not under a doctor's orders) in the past year.¹⁵

IN THE PAST 30 DAYS AMONGST 12TH GRADERS



22.2%

had used **marijuana**



20.9%

reported vaping **nicotine**



30.2%

had consumed **alcohol**¹⁴

QUESTIONS TO CONSIDER

1. What is one statistic or piece of information from the handout that strikes you, and why?

2. What is one other piece of information about which you had been unaware?

3. What is one other piece of information that in some way relates to your own life?

4. In what way might the information you learned from this lesson affect how you think about substance use among teens or people with addiction?

HANDOUT: 02

FACTORS INFLUENCING SUBSTANCE USE AND THE DEVELOPMENT OF SUBSTANCE USE DISORDER

“Out of the fifteen kids that would have tried to skip this assembly,
seven of us became heroin addicts.”

~ CHRIS HERREN ~

RISK FACTORS

The **National Institute on Drug Abuse for Teens** identifies four main factors that increase the chance that a young person will develop an addiction:

Although we know what happens to the brain when someone becomes addicted, we can't predict how many times a person must use a drug before becoming addicted. A combination of factors related to your genes, environment, and development increases the chance that taking drugs can lead to addiction:

- **Home and family.** Parents or older family members who misuse nicotine, alcohol or drugs can increase young people's risk for developing a substance use disorder, either by modeling the behavior or because of innate genetic or biological tendencies toward addiction that get passed down through the generations.
- **Peers and school.** Friends and acquaintances who use nicotine, alcohol or drugs can subtly or overtly influence young people to try these substances themselves, which for some people can be 'the first day' toward developing a substance use disorder.
- **Early use.** Although using nicotine, alcohol or drugs at any age can lead to addiction, research shows that the earlier a person begins to use, the more likely he or she is to progress to problem use or addiction. This may reflect the

harmful effect that addictive substances can have on the developing brain. It also may be the result of early exposure to biological and social risk factors, such as genetic vulnerabilities, mental illness, unstable family relationships, and exposure to trauma.

- **Method of use.** Smoking a drug or injecting it into a vein increases its addictive potential. Both smoked and injected drugs enter the bloodstream and then the brain within seconds, producing a powerful effect. However, this intense "high" can fade within a few minutes, taking the person down to lower levels than they otherwise would experience. Scientists believe that this low feeling drives individuals to repeat substance use in an attempt to recapture the initial high, which becomes more and more difficult to attain with increasing frequency and intensity of drug use.¹⁶

INSTRUCTIONS

1. In your group, read aloud the description of one of the four risk factors, above.
2. Engage in a short discussion about that particular factor, addressing the following questions. Make sure the note taker is capturing the key points raised in the discussion:
 - How important do you believe this factor to be in developing addiction and why?
 - In what ways does this factor show up in Chris' story?
 - In what ways do you think adolescents might be especially vulnerable to this risk factor?
3. Repeat #1 and #2 for each of the four risk factors.

CITATIONS

1. <https://www.samhsa.gov/find-help/disorders>
2. <https://www.centeronaddiction.org/what-addiction/addiction-disease> and <https://www.drugabuse.gov/publications/media-guide/science-drug-use-addiction-basics>
3. The Game Has Changed: Chris Herren at TEDxUMassAmherst - (min. 2:07 - 2:20)
4. Many definitions excerpted from <https://www.centeronaddiction.org/addiction/glossary>
5. <https://www.cdc.gov/drugoverdose/data/statedeaths.html>
6. <https://www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/principles-effective-treatment>
7. <https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/treatment-recovery>
8. <https://www.drugabuse.gov/publications/media-guide/glossary>
9. <https://www.drugabuse.gov/publications/drugfacts/genetics-epigenetics-addiction>
10. <https://www.centeronaddiction.org/addiction-prevention/teenage-addiction>
11. <https://www.pewresearch.org/fact-tank/2019/02/26/the-concerns-and-challenges-of-being-a-u-s-teen-what-the-data-show/>
12. *ibid.*
13. *ibid.*
14. <http://monitoringthefuture.org/pubs/monographs/mtf-overview2018.pdf>
15. *ibid.*
16. <https://teens.drugabuse.gov/drug-facts/brain-and-addiction>