

Say “YES” to a Healthy Lifestyle



Discovery
EDUCATION



GRADE
RANGE
5–7

RISKY BEHAVIOR | CLASSROOM ACTIVITY

ASK, LISTEN, LEARN MARIJUANA AND YOUR DEVELOPING BRAIN

Learning Objectives

Students will:

- **Differentiate** between cannabis fact and fiction.
- **Understand** the role that endocannabinoid neurotransmitters play in their brains and bodies and how they can be affected by cannabis.
- **Compose** a writing piece based on a perspective, audience, and format of their choice that describes the effect of cannabis on the developing brain.

Overview

Ask, Listen, Learn in partnership with Discovery Education teaches kids what the brain does, alcohol does to it, and what that does to YOU! But underage drinking is not the only risky behavior that presents itself to kids; they also come across peer pressure in terms of cannabis use as well. It's important to address the dangers of underage cannabis use with kids, especially as it becomes legal in some states across the country. In this activity, students will investigate why and how cannabis affects their brains and bodies. They will begin by separating cannabis facts from fiction. Through a video and a reading, they will learn about the role of endocannabinoids and how they are affected by THC, a chemical compound found in cannabis. Students will ultimately apply what they learn as they create a perspective writing piece that creatively and factually describes the impact of cannabis on the developing brain.

Target Audience

Grades 5–7

Activity Duration

60 minutes

Materials Needed:

- Device with the ability to project, one for the teacher
- *Fact or Fiction* handout, one for the teacher
- *Marijuana and the Brain* handout, one per student

- How Marijuana Affects the Developing Brain [Endocannabinoid System video](#) to project
- RAFT Writing handout, one per student
- Various kinds of paper (lined, blank, etc.), for students to share

Procedure

1. **Warm-Up:** Begin with a popcorn share* around the word *marijuana*. Ask students to think of the first one or two words that come to mind. Encourage everyone to share once and reassure students that it's okay to repeat words that their peers have said if they had similar initial thoughts.

*In a popcorn share, students voluntarily “pop” out of their seats to give a brief answer. When the speaker sits down to signal that they are finished, the next student may pop up and share.

2. Once the class has shared their initial thoughts, explain that today they are going to learn more about marijuana and what it does to the developing brain.
3. Explain that they are going to play a game of Marijuana Fact or Fiction to begin. To prepare:
 - Designate one wall of the room as Fact and the other wall of the room as Fiction. You may label each wall with a cutout from the *Fact or Fiction* handout or you may create your own.
 - Explain that you are about to read a series of different statements. As you read each one, students should think about whether they believe the statement is true or false. If they believe it is true, they should move quietly to the Fact wall. If they think the statement is false, they should move quietly to the Fiction wall.
 - Acknowledge that students may not know the answer and it's okay to take an educated guess! The goal of this activity is to build their background knowledge.

If facilitating instruction in a remote learning environment, ask students to make a T-Chart with the headings “Fact” and “Fiction”. Ask students to number their chart 1–5. Then, as you read each statement, direct students to check off if they believe that statement is a fact or fiction.

4. Then, read each statement below and allow time for student thinking and movement. Be sure to ultimately share whether each statement is Fact or Fiction and why before moving to the next one.
 - Statement 1: It is legal in some states for teens to use marijuana. Fact or Fiction?
 - FICTION: It is illegal in ALL states for those under 21 to use marijuana.
 - Statement 2: Marijuana is made from a plant. Fact or Fiction?
 - FACT: Marijuana is a shredded mix of dried leaves, flowers, and stems from a plant called Cannabis.
 - Statement 3: Since marijuana is natural, it can't affect my health. Fact or Fiction?
 - FICTION: Cannabis plants contain a psychoactive, or mind-altering chemical called THC, so marijuana can affect and harm your health no matter how it is used. Don't forget: Rashes

and other allergic reactions can come from a plant too, like poison ivy or poison oak. Natural does not always equal safe.

- Statement 4: You can get addicted to marijuana. Fact or Fiction?
 - FACT: Repeated marijuana use can lead to addiction—which is also called cannabis use disorder. When you are addicted to a substance, you have trouble controlling your use, even though you know it’s bad for you.
 - Statement 5: Marijuana affects our brains. Fact or Fiction?
 - FACT. Let’s investigate this a little further!
5. Distribute one *Marijuana and the Brain* handout to each student. Divide students into pairs and give them time to complete the Read and Discuss sections together.
 6. As pairs finish, invite a couple of pairs to share a summary of their discussion.
 7. Then, move on to the Watch & Jot section. Read the instructions aloud and play the [Endocannabinoid System video](#).

Tip: It may be helpful to pause the video at 2 minutes 06 seconds so students can share their notes for the first question with a partner. They may then discuss their answer to the second question when the video is complete.

8. Once pairs have completed the Watch & Jot section, distribute one RAFT handout to each student. Review the directions provided and explain that this is an opportunity for students to produce a creative piece of writing that focuses on important nonfiction content. Be sure students understand that once they select a role, audience, and format, they will be responsible for writing to the audience they chose, from the perspective that they selected, and in the format that they indicated as they share the impact of marijuana on young people’s developing brains.

Answer questions as needed. Then show students where they can find the different kinds of paper they may need and allow the class to get to work.

9. **Wrap-Up:** When the class session is complete, encourage students to share a summary of their writing’s key message in a sentence or two. Each student’s summary should answer the question: How does marijuana affect the developing brain?

Ask those who have not finished their writing to complete it for homework, and try to set aside time in the near future for students to share their completed work with each other.

National Standards

Next Generation Science Standards

Molecules to Organisms: Structures and Processes

- Disciplinary Core Ideas:
 - Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2)
 - In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions. (MS-LS1-3)

National Health Standards

Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

- 1.8.9: Examine the potential seriousness of injury or illness if engaging in unhealthy behaviors.

Standard 5: Students will demonstrate the ability to use decision-making skills to enhance health.

- 5.5.6: Describe the outcomes of a health-related decision.
- 5.8.7: Analyze the outcomes of a health-related decision.

Common Core English Language Arts Standards

Reading

- CCSS.ELA-LITERACY.CCRA.R.1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

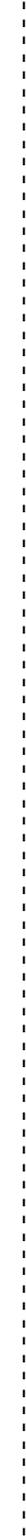
Writing

- CCSS.ELA-LITERACY.CCRA.W.2: Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- CCSS.ELA-LITERACY.CCRA.W.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Speaking and Listening

- CCSS.ELA-LITERACY.CCRA.SL.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-LITERACY.CCRA.SL.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Fact or Fiction



FACT



FICTION



Marijuana and the Developing Brain



READ the following aloud with a partner:

Neurotransmitters are chemical messengers that send important information between our brain and our body. There are more than 100 kinds of neurotransmitters, and each type is responsible for sending different kinds of messages. **Endocannabinoids** (pronounced en-do-cann-a-bi-noid) are one type of neurotransmitter.

Endocannabinoids can be found throughout our brain. They send messages to our immune system, our nervous system, and almost all of our body's organs! Their messages help with many important tasks—including how we move, feel, and react. In order for an endocannabinoid to transmit its message and help with these tasks, it must attach to part of another cell called a receptor. Once the endocannabinoid is attached to another cell's **receptor**, it can share its message.

When marijuana is taken in any form, a chemical called **THC** (short for tetrahydrocannabinol) enters the body. THC has a shape that is similar to endocannabinoids. In fact, THC is so similar that it is able to attach to the cell receptors that are meant to receive the endocannabinoids' messages! When THC attaches to these cell receptors, it blocks the endocannabinoids. This means that the endocannabinoids can't transmit their important messages.



DISCUSS

Based on the information you just read, does it make sense that marijuana would affect the human brain and body? Why or why not?



WATCH & JOT

When THC from marijuana blocks endocannabinoids, what effect(s) can it have on the human brain and body?

Why can marijuana have a stronger and more harmful effect on young people than on adults?

RAFT Writing

Directions:

1. You are about to complete a writing activity that educates others about the impact of marijuana. To help you plan for your writing, select or write in one answer for the *Role*, *Audience*, and *Format* questions below. The *Topic* has already been completed for you.
2. Once you have made your selections, apply what you have learned to create an original piece of writing. You will write from the perspective of the role you chose and speak to the audience you selected as you explain the impact of marijuana on the developing brain.

Tip: Use your *Marijuana and the Brain* handout to help you!

Role: Who are you? What perspective will you write from?

- Brain
- Specific part of the brain: _____

Audience: Who will you write to?

- Yourself
- Peer
- Younger child
- Celebrity: _____
- Other: _____

Format: What kind of writing will you do?

- Email
- Thank you note
- Letter
- Storyboard and/or comic strip
- Top 10 List
- Script for a commercial
- Other: _____

Topic: What will you write about?

- The impact of marijuana on young people's developing brains