

Alcohol and the Developing Brain



Discovery
EDUCATION



GRADE
RANGE
5–7

DIGITAL EXPLORATION | CLASSROOM ACTIVITY

ASK, LISTEN, LEARN: DECISION MAKING

Learning Objectives

Students will:

- Identify what the brain does, what alcohol does to it, and how that affects behavior and decision making.
- Identify the area of the brain associated with decision-making.
- Describe choices and consequences in response to a scenario.
- Analyze the decision-making process using a decision tree.
- Predict the effects of underage drinking on their ability to make healthy decisions.

Overview

In this activity, students investigate the brain processes that occur when making decisions and consider the potential effects of underage drinking on those processes. Students work in pairs to conduct research to learn about the cerebral cortex, frontal lobe, and the decision-making process. They then create a decision tree¹ in response to a given scenario. Partners form small groups where they will share their decision-making processes with each other and discuss how underage drinking may have changed the process and/or the final decision.

Target Audience

Grades 5–7

Activity Duration

60 minutes

Essential Questions

- How do we make important decisions?
- How does the brain process choices and consequences?
- How does underage drinking affect the developing brain and its ability to make healthy decisions?

¹Learn more about decision trees at [Decision Trees: Simplifying the decision-making process.](#)

Materials

- Electronic devices with Internet access
- *Handout: Simple Decision-Making Tree Sample* (to be projected for class)
- *Handout: Simple Decision-Making Tree Template* (one per small group)
- Pens and pencils

Optional Resources

- [Alcohol and the Developing Cerebral Cortex Lesson Plan and Video](#)
- [Pre-Frontal Cortex Facts for Kids](#)
- [Brain's Decision-Making Spot Found](#)
- [Decision-Making Process: Complete Guide](#)

Teacher Preparation

Prepare for this activity by reviewing the brain, body, and behavior activities at [Discover Brain Body Behavior](#) and the brain lessons at [Ask, Listen, Learn](#). Also, be sure to preview the websites students will use to gather information (listed below).

Procedure

1. Begin the activity by asking students to think about the types of decisions they make every day (which are aided by their cerebral cortex and frontal lobe, of course!). Call on volunteers to provide examples of decisions they have made recently. Examples might include relatively simple decisions like what to pack for lunch, which movie to see, or what to wear to school or more complex decisions such as whether to continue being friends with someone or how to work with a partner to complete an assignment.
2. Explain to students that they will be working with a partner today. Each pair will receive a scenario that asks them to make a decision. However, first they will work with their partner to gather information about a critical tool for decision-making: the brain.
3. Assign students to a partner (or let them choose their own). Direct students to spend 15–20 minutes conducting research on the frontal lobe and how the brain makes decisions. Have students think about what they learned from the module and visit 2–3 of the following websites to gather more information:
 - [Alcohol and Your Developing Cerebral Cortex Lesson Plans](#)
 - [Brain Development and Adolescent Growth Spurts](#)
 - [The Workings of the Adolescent Brain](#)
 - [Decision-Making](#)
 - [Teen Brain: Behavior, Problem Solving, and Decision-Making](#)

For a refresher about the brain-body-behavior connection to underage drinking, visit the [Discover Brain Body Behavior](#) website.

4. After 15–20 minutes, call on volunteers to share some of what they have learned. Record students' findings on the board.
5. Show students the **Simple Decision-Making Tree Sample**. Explain how the tree shows the decision the person is trying to make, the choices they have identified, and the potential consequences of each choice. Be sure to note that this is a simple decision-making tree. In complex decision-making, each consequence could create a new choice that would require consideration of new consequences.
6. Explain that sometimes the consequences of our decisions are minor. Sometimes, however, the consequences of our decisions may be serious, dangerous, or long-lasting. Our brain helps us weigh the consequences of our decisions and choose accordingly. But how does it do that? Students learned a little about that in their research, but now they will have a chance to put it all together.
7. Hand out a scenario to each pair of students. Challenge them to analyze the scenario and use the **Simple Decision-Making Tree Template** to identify their choices and the potential consequences. Students should make a final decision and explain their reasoning.
8. Give students 5–7 minutes to work. As students complete their **Simple Decision-Making Tree Templates** with their partners, walk around and listen to their conversations. Take note of discussions you may want to bring up with the whole class later.
9. After 5–7 minutes, regroup students and ask pairs to share their scenarios and decision-making processes with the whole class. Note that some pairs will have the same scenario. This provides an interesting look at each pair's decision-making process and the choices and consequences they identified!
10. After several pairs have shared their thinking, ask questions such as the following to encourage students to make the connection between their decision-making processes and the role of the brain:
 - What decision-making steps did many of you seem to share? Why do you think that is?
 - Based on what you learned from your research, which part(s) of the brain were needed to make this decision?
 - How do the parts of the brain interact during decision-making?
 - Do you think you would have made the same decision—or even used the same decision-making process—five years ago? Why or why not? What has changed?
 - How might your decision-making process be different five years from now?
11. Remind students that they have learned a lot about the effects of underage drinking on the developing brain and that the consequences can have short-term and long-term effects. Ask questions to engage students in a discussion about how drinking alcohol affects the developing brain:
 - How does alcohol affect our developing brains?
 - How does alcohol affect our developing brain's ability to process information?

- Does alcohol slow down or speed up our processing time?
 - If an underage person were to drink alcohol, what part of the decision-making process might be disrupted or slowed down?
 - Is a developing brain impaired by alcohol able to effectively weigh consequences? How do you know?
- 12.** Ask students to reflect on what they know about how alcohol affects the developing brain. Challenge them to consider how alcohol would have affected their brains—and thus changed the decision-making process and/or the final choice they made. Encourage students to identify possible consequences of underage drinking on their developing brains.
- 13.** Close the activity by reminding students that the sample decisions they experimented with today were simple decisions, designed to help them explore the decision-making process in their brains. However, real-life decisions involve real-life consequences. Avoiding underage drinking protects their developing brains and ensures that they have the ability to make healthy decisions.

Additional Resources for Students

- [How Alcohol Affects the Developing Brain Videos](#)
- [Printable Poster: Alcohol and Your Developing Brain](#)
- [The Science Behind the Effects of Alcohol on Your Brain](#)
- [Healthy Decisions for the Whole Body](#)
- [Informed Students Make Better, Healthier Decisions](#)
- [Alcohol and Your Developing Cerebral Cortex Activity](#)

National Standards

National Health Standards | Grades 3–5

- 5.5.3 List healthy options to health-related issues or problems.
- 5.5.4 Predict the potential outcomes of each option when making a health-related decision.
- 5.5.5 Choose a healthy option when making a decision.

National Health Standards | Grades 6–8

- 5.8.1 Identify circumstances that can help or hinder healthy decision-making.
- 5.8.4 Distinguish between healthy and unhealthy alternatives to health-related issues or problems.
- 5.8.6 Choose healthy alternatives over unhealthy alternatives when making a decision.
- 5.8.7 Analyze the outcomes of a health-related decision.

Common Core State Standards Grade 5

CCSS.ELA-LITERACY.W.5.2.D

Use precise language and domain-specific vocabulary to inform about or explain the topic.

CCSS.ELA-LITERACY.SL.5.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Common Core State Standards Grade 7

CCSS.ELA-LITERACY.W.7.2.D

Use precise language and domain-specific vocabulary to inform about or explain the topic.

CCSS.ELA-LITERACY.SL.7.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

Decision-Making Scenarios

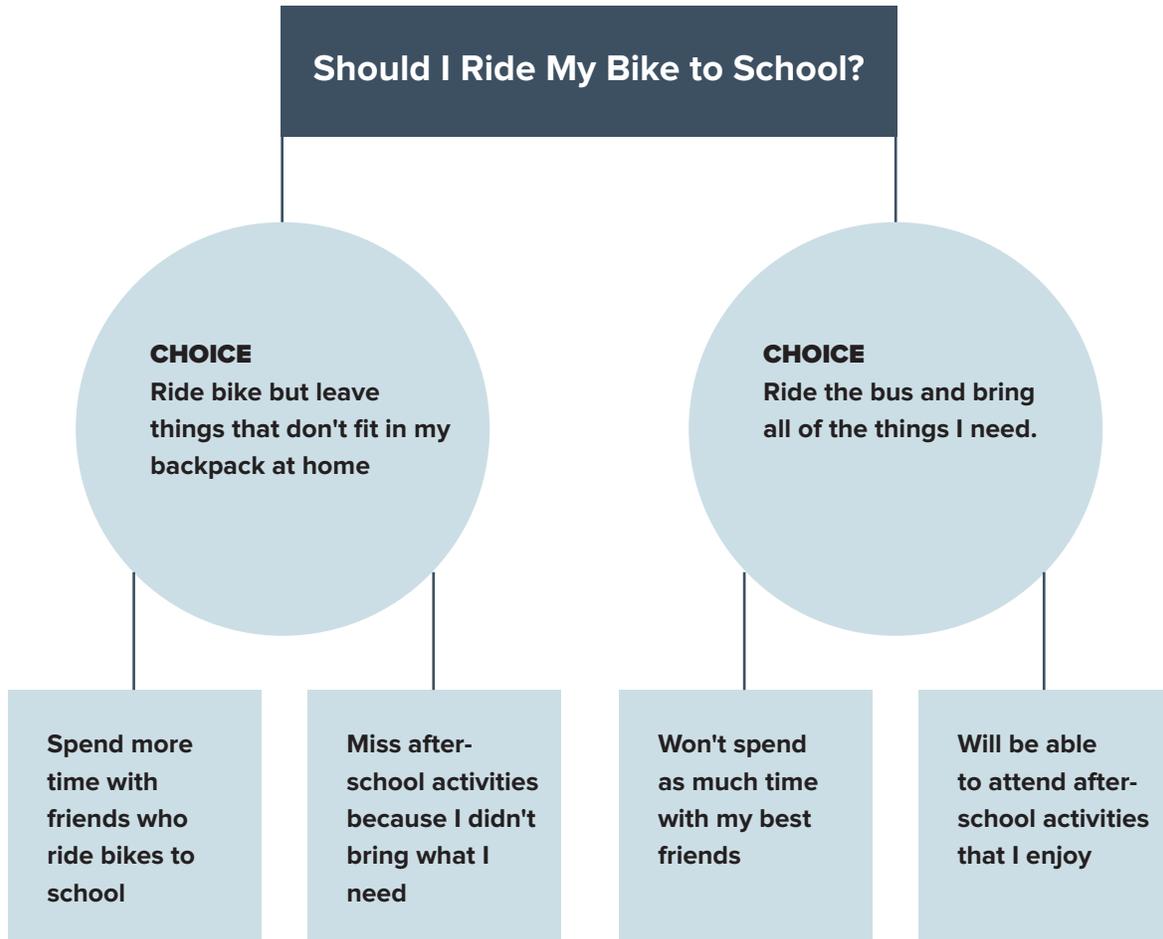
Directions: Cut into strips and give one to each pair of students. Some students may have the same situations.

You are supposed to come straight home after school and complete your homework. Some friends invite you to play basketball on the playground after school. You do not have a mobile phone. Do you go home or do you play basketball?

School starts in three days. You have two chapters left to read in your summer reading book plus a short project to complete. A friend invites you to the water park for a day of fun before school starts. Do you finish the reading assignment and project or do you go to the water park?

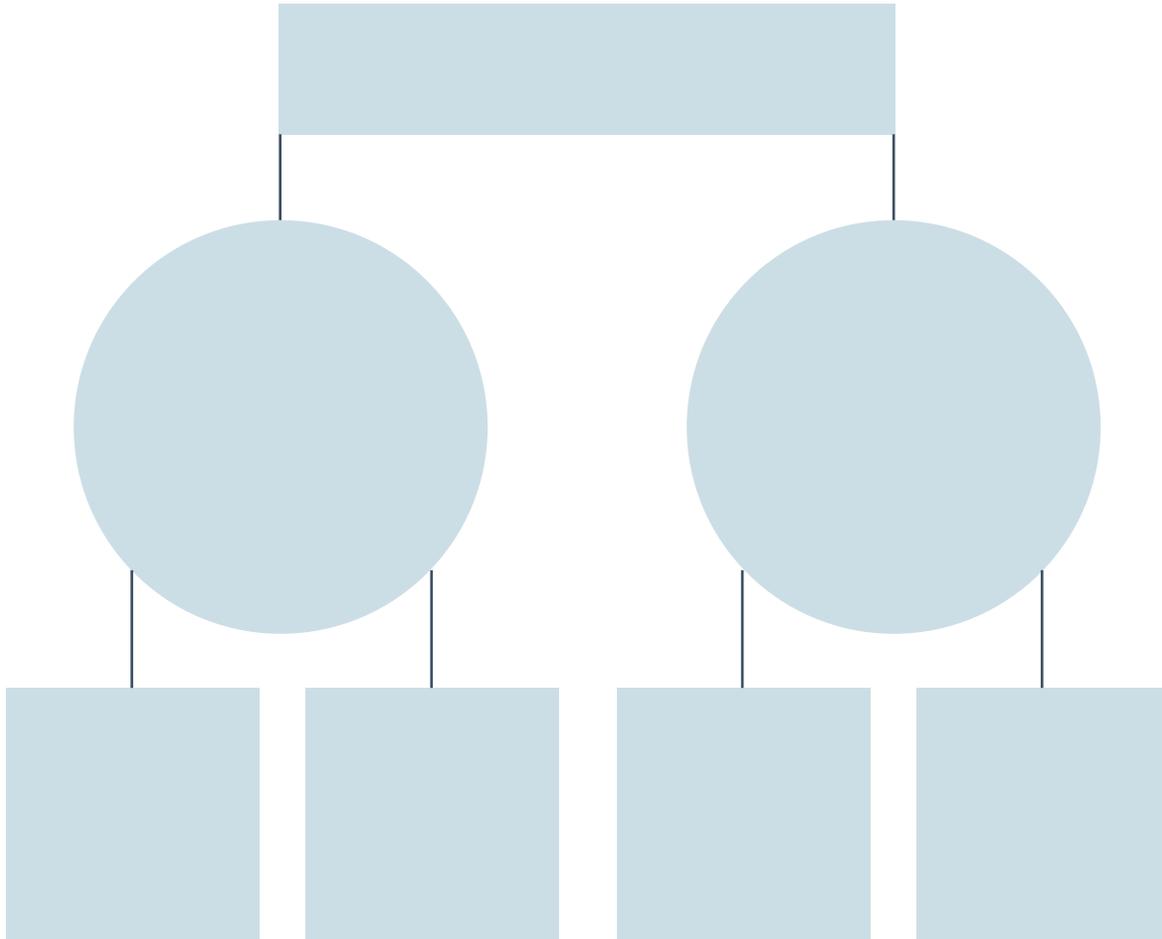
You get home from school and need to take your dog for a walk. It's pouring rain outside. Do you take your dog for a walk in the rain or stay inside?

You have prepared for your big science test tomorrow and think you are ready. Now all you need is a good night's sleep, but your older sister wants to play video games. It's so fun you always end up playing for hours! If you stay up to play, you won't get enough sleep and you'll be groggy tomorrow. Do you go to bed or play video games with your sister?



Simple Decision-Making Tree Template

Use this template to show the steps in the decision-making process that you would use to answer the question or solve the problem presented in your situation. Feel free to add additional boxes where necessary.



Final Decision: _____

Explain why you chose that option: _____
