

## **TEACHER PREPARATION**

### **KEY CONCEPTS**

1. Alcohol abuse causes significant damage to vital organs.
2. The damaging effects of alcohol progress over time and are dependent on the amount consumed, the number of years of use, and genetic factors.

### **OBJECTIVES**

By the end of this lesson, students should be able to:

1. Identify the major body systems that are affected by alcohol abuse.
2. Identify significant health problems related to alcohol abuse.
3. State which of their dreams would be impossible if they abuse alcohol.

### **BACKGROUND INFORMATION**

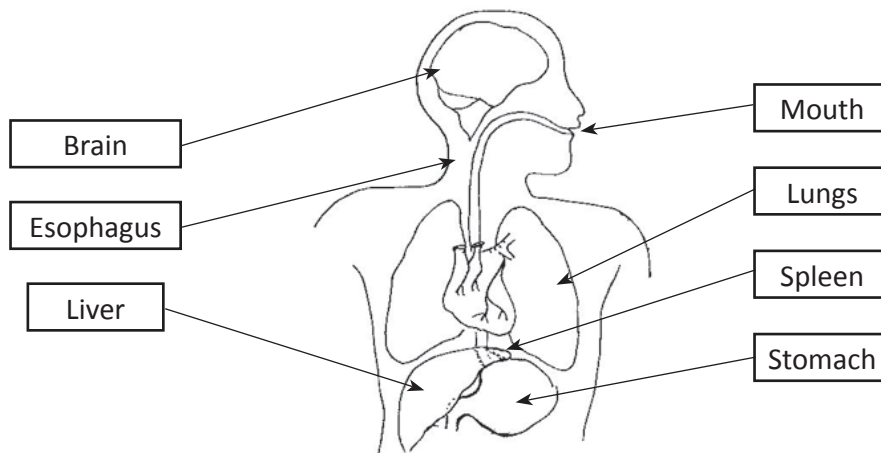
- Alcohol abuse shortens an abuser's life expectancy by an average of 12 years.
- Alcohol has a very simple molecular structure and, therefore, is able to cross nearly every biological membrane and affect almost every organ in the body.
- The obvious effects of alcohol on the brain are a direct result of the sensitivity of the cortex to the depressive nature of alcohol.
- Chronic alcohol abuse can result in stroke (cerebral vascular incident) and cerebral degeneration.
- Alcohol increases the chance of certain forms of cancer due to the chronic irritation of mucous membranes. In people who also use tobacco, the alcohol may dissolve the carcinogenic substances, causing them to concentrate in certain areas of the gastrointestinal tract. This accounts for the fact that alcoholics are ten times more likely to get these forms of cancer.
- Alcohol causes inflammation of the esophagus, stomach, and duodenum (small intestine).
- Due to the effects on many organs, alcohol abusers may develop malnutrition, especially vitamin and protein deficiencies, and anemia.
- Because alcohol is a simple carbohydrate, the liver will use it first for fuel and store more complex sugars as fat. In alcoholics, this storage leads to fat accumulation around the liver, alcoholic hepatitis, and cirrhosis. Cirrhosis leads to esophageal varices (distended veins), which, if they burst, can result in fatal hemorrhaging.

- Chronic alcohol abuse can result in enlargement of the spleen and subsequent decrease in the white blood cell count. This leaves a person vulnerable to infections, particularly pneumonia.

## MATERIALS / PREPARATION

**In the Box: The Grandmothers' Letter and small stone or pebble.**

- Small stones or pebbles, one for each student.
- Determine a location in the room where you can leave a pile of stones (one for each student) until Lesson 15. If that is unworkable in your situation, bring a bag or other container in which to keep the stones until Lesson 15. Plan to bring this container to each class session until then.
- Sketch a drawing of the human torso on the board ahead of time. It does not need to be perfect!



# LESSON

## BEGINNING THE LESSON



### STORY AND SIMULATION

ABOUT 10 MINUTES

[Read the following story:]

"I'm bored," complained Sasha. "There's nothing to do around here."

"You could try studying," chided Natasha.

"Oh, things aren't that desperate!" laughed Sasha. "Besides, there's always the chance our grandmothers have dreamed up something fun for us."

Just then Tatyana Alexandrovna walked up to the students. "So, are you all ready for today's encounter with your grandmothers?"

"Sure," they replied.

Tatyana Alexandrovna pulled out the box and, after a moment's search, pulled out a tightly wrapped scroll. She handed it to Dima, and he opened it.

"It's called 'For Want of a Nail.'

'For want of a nail the shoe was lost,  
for want of a shoe the horse was lost,  
for want of a horse the rider was lost,  
for want of the rider the victory was lost,  
for want of the victory the country was lost  
– all for want of a nail.' "

"Let me guess," said Sasha. "There are three nails in the box for us."

"No, there are nails in there – but they have nothing to do with today's lesson," replied Tatyana Alexandrovna. She produced three small ordinary rocks and set one before each of the students.

"Thank you, Grandmother! I'll treasure this always," said Sasha under his breath to Natasha.

"Did you say something?" asked Tatyana Alexandrovna.

"Ah, nothing important," said Sasha.

"Good," said Tatyana Alexandrovna. "Now I want you to put your rock in your shoe."

"We're about to experience the truth of what was on that scroll about the nail, aren't we?" asked Dima.

"You're learning already," smiled the teacher. "We'll meet back at the end of the day and see how you did with this one small addition to your regular day."

## EXPLORING THE LESSON

Have stones ready for students.

Pass out one stone to each student.

Wait until all the students have received a stone before resuming the lesson.

Do not tell the students at this time, but the object of this is for them to experience some discomfort from the stone in their shoe. They should not remove the stone.

 = 10 minutes

Let's interrupt the grandmothers' story for a while to talk about another thing that can affect how you walk – the effect of alcohol on your body. We will learn about what body systems are affected and what health problems are associated with alcohol abuse.

To begin with, each of you will receive a stone.

When you receive your stone, I want you to put it in your shoe. If it is a little uncomfortable, that is all right; just put it in your shoe.

What kinds of beverages have alcohol in them?

*[Listen for responses such as beer, wine, vodka.]*

How does alcohol affect the human body?

*[Listen for responses such as drunkenness, staggering, causes sleepiness, vomiting.]*

These responses are primarily short-term – meaning that they will cease once the alcohol has been processed (metabolized) by the body. These effects are because alcohol, which has a very simple chemical structure, can pass through the body's natural filter that normally protects the brain from many chemicals and infectious material. This filter is called the blood-brain barrier. When alcohol passes through your bloodstream and into the brain, it affects the cerebral cortex, which influences mood, balance, coordination, alertness, and judgment.

Now, I would like all of you to stand up and walk around the room once and sit back down.



### SHADING OF AFFECTED ORGANS

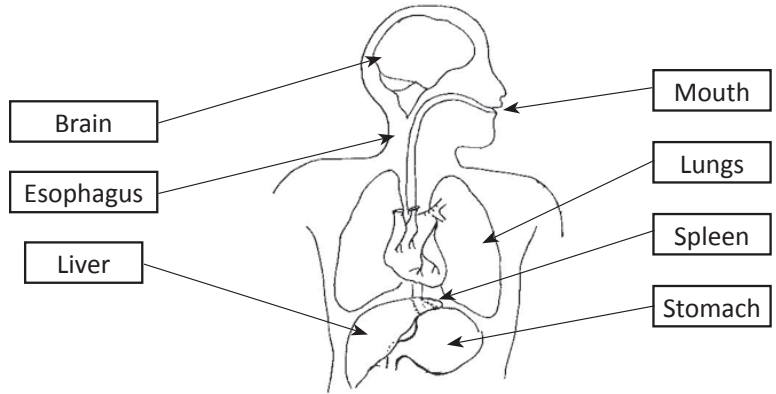
ABOUT 5 MINUTES

Ask a student to come to the board and shade in the brain, mouth, esophagus, and stomach.

The effects of alcohol that we have discussed thus far are primarily short-term effects. Chronic alcohol abuse can cause many other health problems that can be permanent.

By the way, as a side note, you may be aware that smoking and chewing tobacco are linked with certain cancers of the mouth, esophagus, and stomach. If a person uses tobacco in such a way, and also abuses alcohol, they are ten times more likely to develop such cancers.

Let us shade in the affected parts of the body that we have discussed thus far:



As before, do not explain the purpose of this exercise to the students at this time.

**Now I would like all of you to stand up and jump up and down ten times using both feet.**

 = 15 minutes



### SHADING OF AFFECTED ORGANS (CONTINUED)

ABOUT 5 MINUTES

Ask a student to shade in the liver on the diagram.

As before, do not explain the purpose of this exercise to the students at this time.

*[After students sit down, resume the lesson:]*

One of the organs most severely affected by alcohol abuse is the liver. The liver is the organ responsible for removing toxins (poisons) from the blood.

Alcohol is a toxin to the human body. Continuing alcohol abuse causes the liver to work harder than it was designed to do.

Ongoing alcohol abuse also causes fat to accumulate around the liver. This can lead to hepatitis and cirrhosis.

Cirrhosis of the liver causes other problems, but the most dangerous are esophageal varices, which are engorged blood vessels that can burst without warning. This type of a hemorrhage can be life-threatening.

I would like all of you to stand up again now. This time, please hop up and down ten times on one foot.

*[After the students sit down, resume the lesson.]*

 = 15 minutes



### SHADING OF AFFECTED ORGANS AND FINISH STORY

ABOUT 10 MINUTES

Have a student shade in the lungs.

Continuing or chronic alcohol abuse can also cause damage to, and enlargement of, the spleen. This affects the production of certain cells in our blood, especially white blood cells. White blood cells are what our bodies use to fight infection. One of the most common infections that alcohol abusers get is pneumonia. We will shade in the lungs on our diagram. The spleen is not visible on our diagram, but it is located near the stomach.

Have students take out their notebooks.

So, the major parts of your body that are affected by alcohol – and especially chronic alcohol abuse – are your brain, mouth, esophagus, stomach, liver, lungs, and spleen.

Please copy the diagram of the body and major organs from the board into your notebooks. Shade in the organs that are affected by alcohol as we have shaded them on the board.

## DISCUSSION

Choose a few students to talk about their experiences. Listen for comments such as: “It only hurt when I stood up, or walked, or, after some time, I forgot about it.”

Now, let’s discuss the stone in your shoe.

**What did the stone do to your ability to perform? Were you able to make any adjustments that made it less painful to perform with the stone in your shoe?**

*[Listen for responses such as: I limped, or I hopped on the other foot.]*

**What are some things that you enjoy doing that you could not do with the stone in your shoe, or could not do well enough to perform or compete?**

*[Listen for responses such as basketball, soccer, hockey, etc.]*

The stone in your shoe can be compared to frequently overindulging in the use of alcohol. At first, you know it is there, but it does not affect you very much. In fact, if you ignore it, you can almost forget about it entirely. Later, it impairs your ability to do something that normally would be simple. What do you suppose would happen if you left the rock in your shoe for one week or one month?

*[Listen for responses such as: You would develop a wound or sore, followed by infection, it could eventually require amputation of the entire foot, their foot would develop a callous in that area.]*

That is similar to alcohol abuse. What begins as a relatively small problem, if left untreated, can result in much damage, even irreparable damage later in life. Sometimes the person becomes so accustomed to an impaired ability to function that he or she doesn’t even recognize what has happened to them. It’s as if the person has become calloused to his or her situation.

Look at the shaded areas on the diagram on the board.

Look at the damage that can occur to your body.

Take a moment to write in your notebook those dreams you have that you would need to give up, dreams that would be impossible for you to reach, or would be completely out of your reach if you were to choose to abuse alcohol.

Now let’s go back to our story and see how the three students fared with the rocks in their shoes.

Have students record in their notebooks.



## RETURN TO STORY

Two of the three students spent the rest of the day limping around with a pebble in their shoes. No matter where they tried to position the little stone, it always made its presence known.

By the end of the day, they were more than ready to put an end to the experiment.

"I didn't get anything done today!" reported Natasha. "All I did was worry with that stupid rock in my shoe!"

"I thought I had a great solution," interrupted Sasha. "I stuck the rock under my toes where it wouldn't hurt so much when I walked. Forgot all about it for a while. But look what happened!" Sasha sat down, pulled off his shoe and sock, and showed Dima and Natasha a mean-looking blister.

"Whoa! Put your shoe back on. Your feet stink," laughed Dima.

"I suppose you came up with a better solution?" said Sasha.

"As a matter of fact, I did," said Dima. "I put the rock in my shoe and then I went barefoot whenever I could. The rock remained in my shoe, but my foot didn't!"

"In other words, you cheated," scolded Natasha.

"That's one possible interpretation," replied Dima in a haughty voice. "Another is that I was rather clever, and I'm not walking with a limp."

"You know I think I could toughen up the underside of my toes and get so I could walk normally even with the rock in my shoe," said Sasha.

"Not one of your better goals in life," said Dima.

"All I was saying is that I could," said Sasha, a bit defensively.

"Surprising how something as common as a pebble can distract us from what we want to do, impair our judgment, do us bodily harm, and come between friends," said the teacher from her vantage point just down the hall.

"Is that what our grandmothers wanted us to learn?" asked Natasha.

"Oh, it's more than that," answered the teacher. "Substitute alcohol for the stone in your shoe and I think you'll see where your grandmothers are headed."

"Oh," said all three.



= 30 minutes



## STONE IN SHOE SUMMARY

10 MINUTES

Just like the stones in our shoes, we can decide to remove alcohol abuse from our lives. We cannot make the decision for someone else, just as we cannot force others to take the stones out of their shoes. We can only decide for ourselves. In the same way, we each have to make our own decision about alcohol.

## NOTE TO TEACHER:

This is not an exercise asking each student to refrain from using alcohol. It is simply a concrete object – the “pile of stones” – that will hopefully help the students remember the dangers of alcohol and its abuse. In Lesson 15, the students will be asked to write in their Personal Journal their commitment regarding alcohol use.

Indicate a place in the room you’ve chosen for the memorial to stay until Lesson 15, “Benefits of Alcohol Abstinence”.

I’m going to ask each of you to make a decision right now about the stone in your shoe.

One option is that you can choose to leave it in your shoe from now until our class meets again. If you choose to keep the stone, you will not only have to keep it in your shoe for the rest of today’s class, but also any time you are wearing shoes from now until our next meeting. And if you wear a different pair of shoes between now and then, you’ll need to move the stone from the shoe it’s in now to one of the other shoes.

I said you had a choice. Here is your other option. If you would like to get rid of your stone right now, you can. In just a moment, any of you who would like to get rid of the stone in your shoe will have a chance to contribute to a stone-pile memorial. In many cultures, piles of stones are ways that people remind themselves of significant ideas or events. Our pile of stones will be a reminder of the pain and problems that abusing alcohol can cause. It will also remind us of the freedom to pursue our dreams that comes when we decide not to abuse alcohol.

So any of you who would like to, can come up right now and contribute your stone to our memorial.

*[When all the students who wish to contribute their stone to the memorial have done so, address the others who kept their stones and say:]*

I see that some of you have chosen to keep your stones until the next class session. Remember, you must keep the stone in any pair of shoes you wear and walk with it in your shoe back to class the next time. I’ll be asking to see your stone at the next class session.



= 40 minutes

## ENDING THE LESSON



### CONCLUSION

5 MINUTES

Point to the pile of stones.

We have learned today that alcohol abuse not only has immediate effects that we can see, but also has long-term effects on several organ systems in the body. Some of these health problems can significantly shorten the life expectancy of the alcohol abuser.

We learned that alcohol abuse may not seem like it causes major problems at first, but left untreated it can cause major problems later.

There is a big difference between having these stones in your



Before dismissing your students, remember to dictate the Parent-Teacher questions to them.



**= 45 minutes**

shoe and the effects of alcohol abuse. Your foot quickly forgets the discomfort of the stone, but *[point to the diagram on the board]* your body doesn't quickly forget the damage done by alcohol abuse.

Today, we've looked at some ways ongoing use of alcohol can harm our bodies. But more than just our physical health is at stake. Next time, we'll examine some other kinds of harm that can result from misuse of alcohol.

## RESOURCES

### GOING DEEPER

Our proverb for today says, “Wine is a mocker and beer a brawler. Whoever is led astray by them is not wise” (Proverbs 20:1).

The ancient Jews (and many people today) believe that God Himself was the ultimate source behind the proverbs in the Bible. So let’s take a minute to make sure we understand what this particular proverb is saying.

**What do you think it means when it says, “Wine is a mocker?”**

*[Accept several answers.]*

**Can you think of any ways that alcoholic beverages “mock” the people who drink them?**

*[People who are drunk often think they look and sound “cool” when actually others think they look and sound ridiculous. Alcoholics believe they are in control and can “stop anytime”, when actually they are becoming addicted.]*

**What about the second statement in this verse; in what ways is “beer a brawler”?**

*[In addition to literally encouraging violent physical fighting, drink often leads to misunderstandings, disagreements, and bitter feelings among friends and family members.]*

### GAME SHOW QUIZ

Now, to illustrate the final part of the proverb – that getting sucked in by wine and beer is unwise – we are going to play a game that will help us review what we learned in this lesson about the physical consequences of alcohol. This game will help show how “wise” all of you are becoming about this potential dream breaker.

*[The questions for this game concern the medical risks of alcohol consumption and come from the lesson. Arrange the class into three or more teams, depending on class size. The rules are simple:*

1. Each time a question is read, the team’s representative has five seconds to answer.
2. A wrong answer – or failure to answer – within five seconds means the question goes to the next team.

3. *The team with the greatest number of correct answers at the end (when all questions have been asked or when all the other teams have been disqualified) is the winner.*
4. *Before a representative hears a question, he or she must flip a coin three times.*

*The outcome will reflect some of the effects of alcohol on the body:*

**3 tails** – *Cancer (only one more turn for that team).*

**2 tails/1 heads** – *Stroke (the individual team member cannot speak for the rest of the game; he or she must still write all answers within the five-second time limit).*

**2 heads/1 tail** – *Depression (team misses next turn).*

**3 heads** – *Neutral outcome (no change in play).]*

**Here are the questions:**

1. **Which part of the brain is especially sensitive to the effects of alcohol?** *(cortex)*
2. **What is the increased risk of cancer in tobacco users who also consume alcohol?** *(ten times)*
3. **Alcohol causes inflammation of the duodenum. What is the duodenum?** *(small intestine)*
4. **Alcohol increases the chances of certain forms of cancer due to the chronic irritation of what tissue?** *(mucous membranes)*
5. **Name one of the nutritional deficiencies that can be caused by the consumption of alcohol.** *(vitamin, protein, iron)*
6. **Which organ uses alcohol for fuel?** *(the liver)*
7. **When the body burns alcohol for fuel, what does it do with more complex sugars?** *(stores them as fat)*
8. **Around which organ does the body of an alcoholic store extra fat?** *(the liver)*
9. **In which part of the body can cirrhosis lead to varices?** *(the esophagus)*
10. **Chronic abuse of alcohol can result in enlargement of which organ?** *(the spleen)*
11. **Chronic abuse of alcohol can result in the decrease in what?** *(white cell count)*
12. **Chronic abuse of alcohol causes which organ to work harder than it should?** *(the liver)*

13. What is the common type of infection among alcohol abusers? (*pneumonia*)

*[When the game is over, review the verse from Proverbs. How did this game illustrate the dangers of alcohol abuse?]*

## FOCUS POINT

Be sure to leave time for discussion at the end of the learning activity so your students can discuss the connection between the learning activity and the lesson. Listen to see whether they seemed to understand the key points listed. If you sense that one or more of these points may have been lost, be sure to guide the discussion to make sure they get these main ideas.

1. Alcohol can be damaging and dangerous to the vital organs of the body.
2. Damage from alcohol abuse can keep a person from competing successfully in the Game of Life.

## PARENT-TEACHER CONNECTION

### For Family Discussion:

1. Please talk to your son or daughter about the memorial they started in class today with the stone that was in his or her shoe. If your child tells you he or she did not contribute to the memorial, that is all right. Remember, they are beginning to make their own choices, but feel free to talk with them about why they did not.
2. As an example to your adolescent, maybe you can identify some area in your life that needs to be changed, and you could form some kind of memorial to help you keep that commitment.

