Diabetes and Healthy Eyes Toolkit
Online Training Course Notes

It is recommended that you order or download the *Diabetes and Healthy Eyes Toolkit* as a companion to the online training course. Visit: http://www.nei.nih.gov/nehep/programs/ojo/toolkit.asp to get your copy.

National Eye Institute
NATIONAL INSTITUTES OF HEALTH
National Eye Health Education Program
NEHEP
NIH…Turning Discovery Into Health®

Welcome to the *Diabetes and Healthy Eyes Toolkit* Online Training Course developed by the National Eye Health Education Program (NEHEP) of the National Eye Institute (NEI).

This course will provide an overview of diabetic eye disease and show you how you can use the *Diabetes and Healthy Eyes Toolkit* in your community. Over the next hour, you will learn how to prepare and facilitate an eye health education session using the toolkit, and activities that you can carry out with people who have diabetes.

Before we begin, let's go over how to navigate the course.

On the right side of each screen, you will find the full text of the training course and an outline. You also have the option to search within the course by selecting the Search tab.

At the bottom of the screen, you will find the control bar. The control bar has a **Pause/Play** button, **Back** and **Next** buttons, a progress bar, and an audio volume control button.

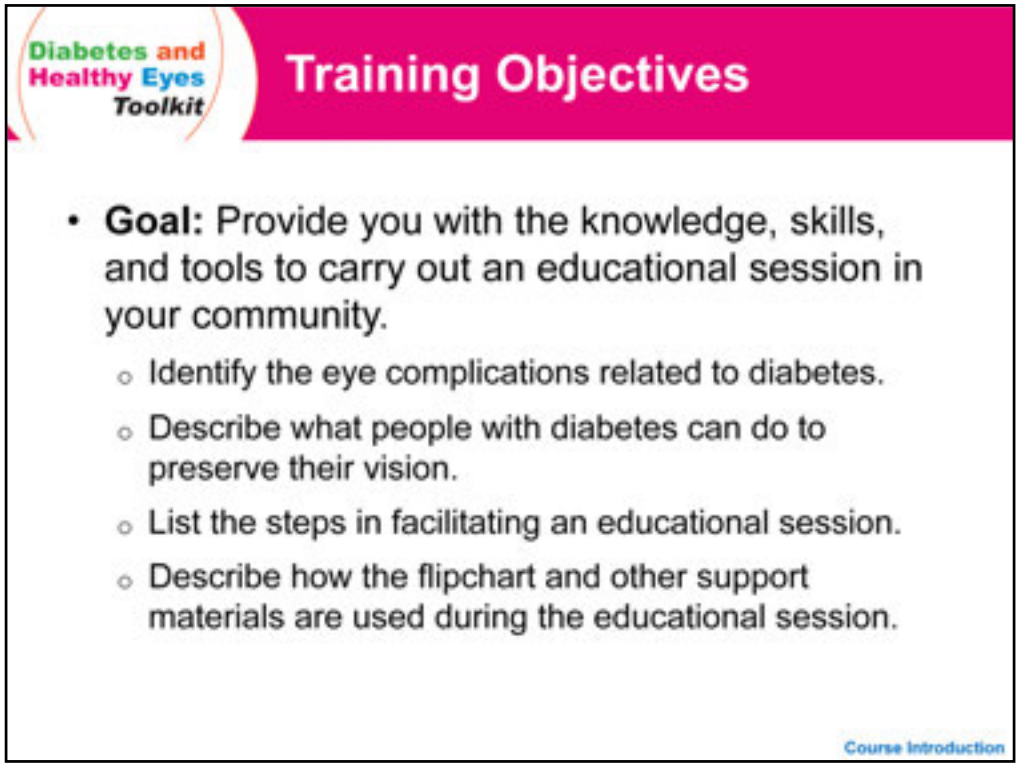
The paper clip icon in the control bar allows you to download materials, such as a printer-friendly version of this course.

Select the **Next** button to continue.

The *Diabetes and Healthy Eyes Toolkit* Online Training course consists of five lessons:

- Lesson 1: Introduction to Diabetic Eye Disease
- Lesson 2: Discovering the Toolkit and Preparing an Educational Session
- Lesson 3: Opening the Educational Session
- Lesson 4: Presenting the Flipchart
- Lesson 5: Reinforcing Content and Closing the Session

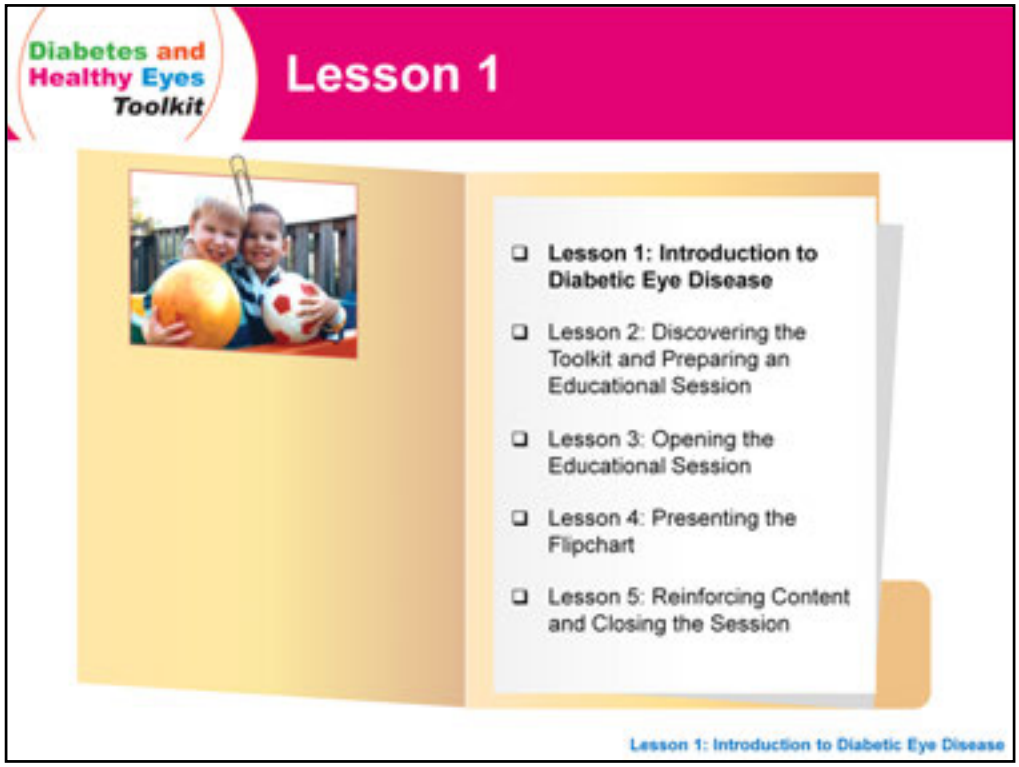
The training should take you about an hour to complete.



The goal of this training course is to provide the knowledge, skills, and tools that you will need to carry out an educational session in your community.

Some of the things that you will learn to do are—

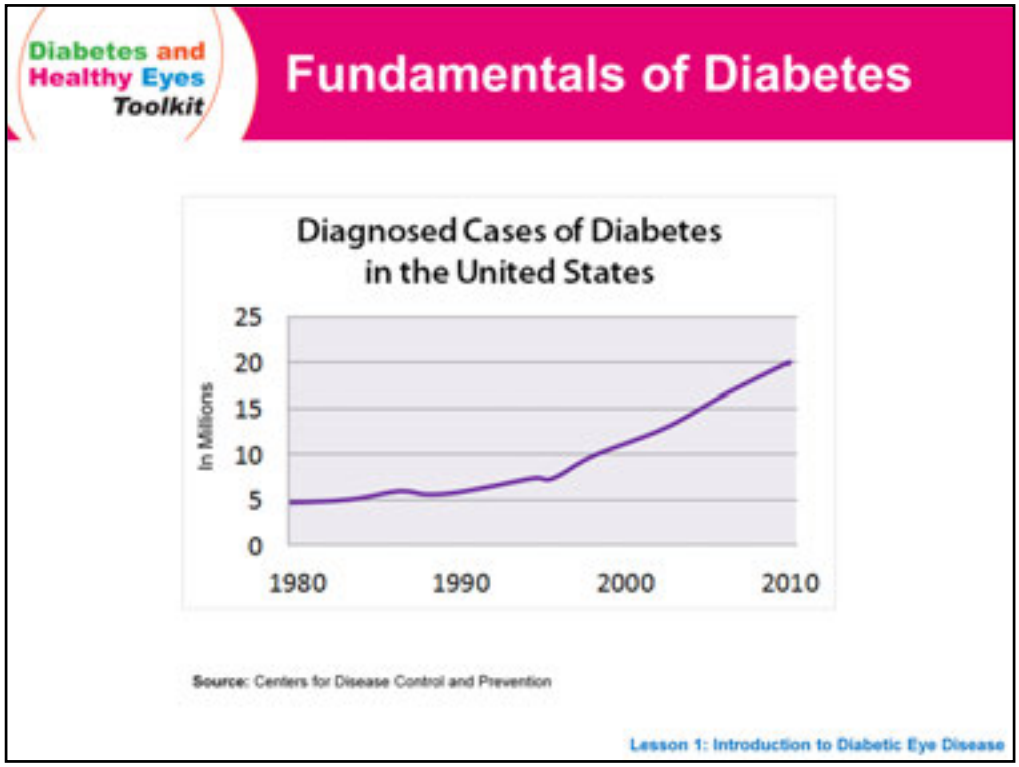
- Identify the eye complications related to diabetes.
- Describe what people with diabetes can do to preserve their vision.
- List the steps in facilitating an educational session.
- Describe how the flipchart and other support materials are used during the educational session.



Let's begin with Lesson 1: Introduction to Diabetic Eye Disease.

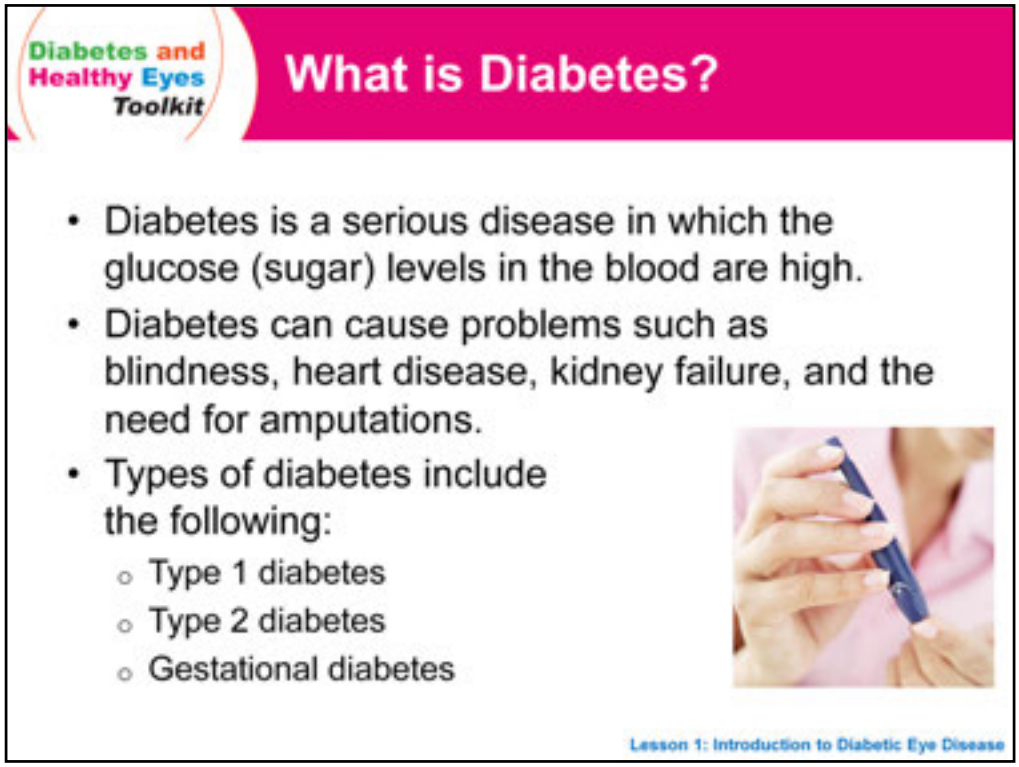
In this lesson you will learn about—

- The fundamentals of diabetes
- The anatomy of the eye
- Diabetic eye disease
- The comprehensive dilated eye exam



Diabetes has become an epidemic in the United States. In the past 30 years, diagnosed cases of diabetes have increased more than 30 percent.

If diabetes is not managed, it can lead to serious complications, including eye disease and blindness. In fact, diabetes is the leading cause of new cases of blindness among adults ages 20 to 74 years old.



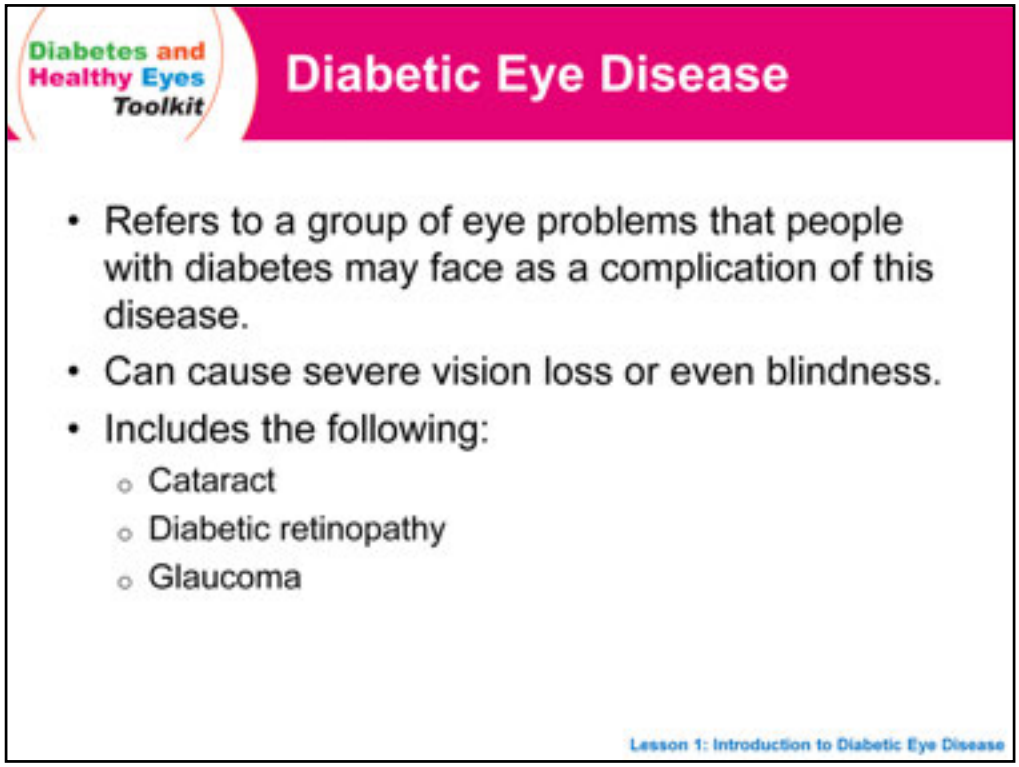
Diabetes is a serious disease in which the glucose, or sugar, levels in the blood are high. Diabetes can cause problems such as blindness, heart disease, kidney failure, and the need for amputations. Only a doctor can diagnose diabetes.

There are three different types of diabetes.

Type 1 diabetes is also called juvenile diabetes because it usually occurs at an early age. Since type 1 diabetes starts in childhood, complications occur at an earlier age. The pancreas does not produce insulin and, if it does, it does so in low quantities. Insulin is a hormone that works like a key opening a door so glucose can enter the cells. Without this key, the doors will not open and the glucose cannot enter the cells, resulting in too much glucose remaining in the blood.

Type 2 diabetes occurs when either the body does not produce enough insulin or the cells ignore the insulin produced by the body. Type 2 diabetes can be associated with older age, obesity, physical inactivity, high blood pressure, high cholesterol, and family history.

Gestational diabetes develops during pregnancy. The glucose levels return to normal after the baby is born. It is important to know if a woman had gestational diabetes because her risk is higher for developing type 2 diabetes in the future.

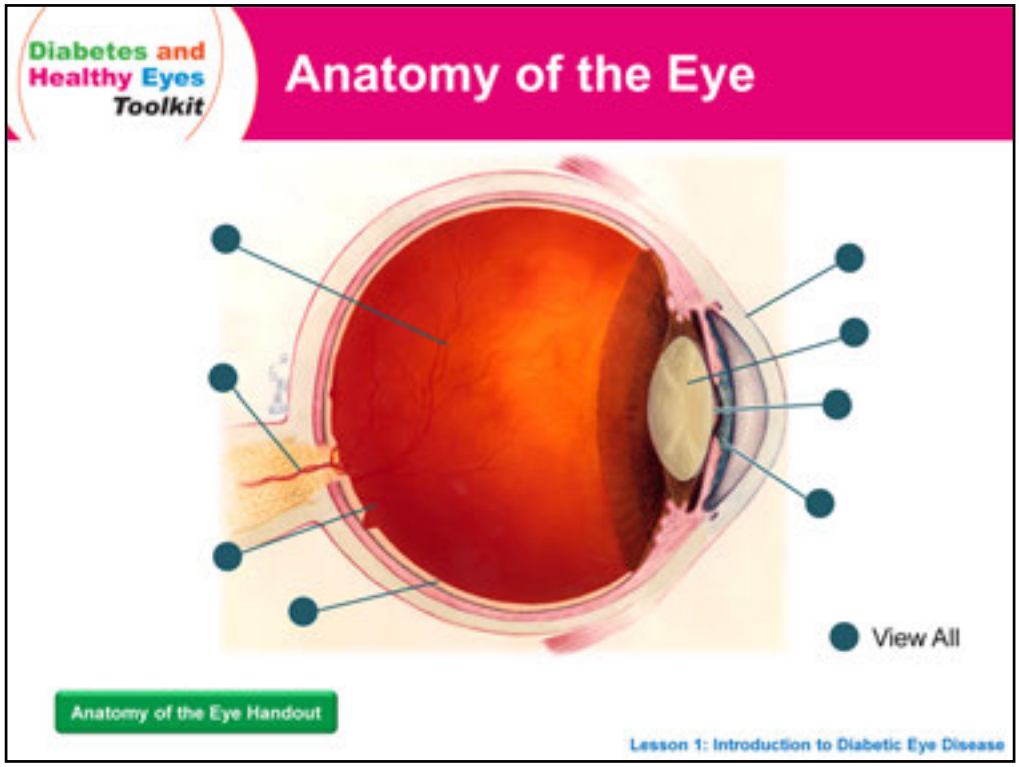


Diabetic eye disease refers to a group of eye problems that people with diabetes may face as a complication of this disease. Diabetic eye disease can cause severe vision loss or even blindness.

Diabetic eye disease includes—

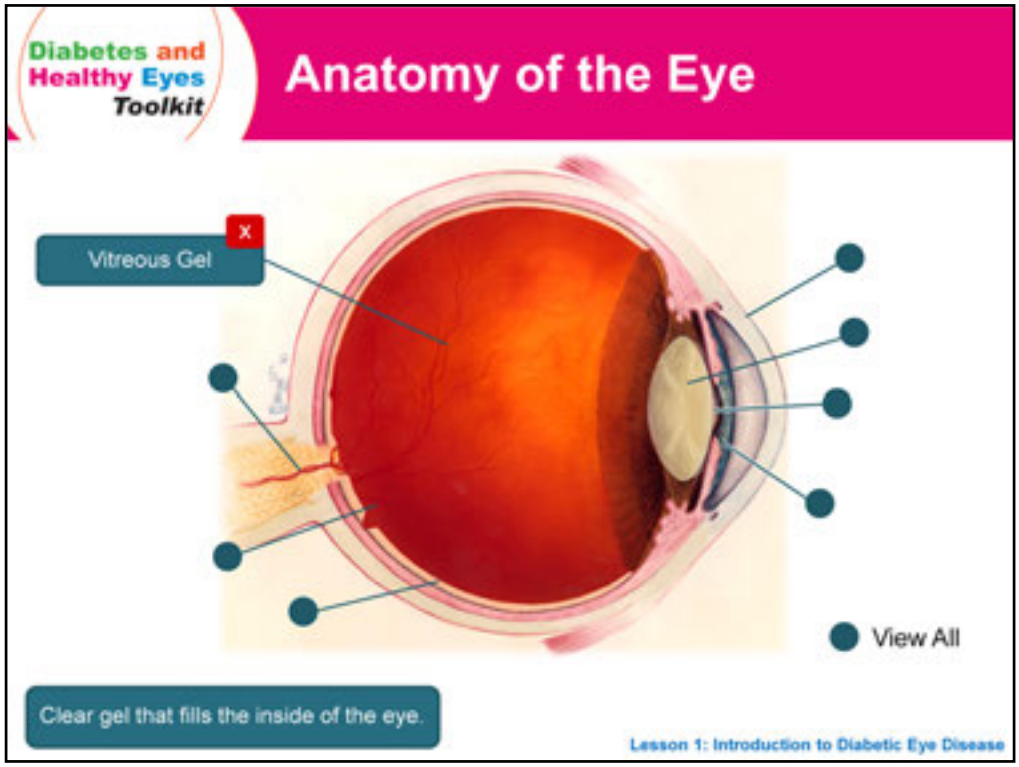
- Cataract
- Diabetic retinopathy
- Glaucoma

We'll cover each of these in more detail in this lesson.

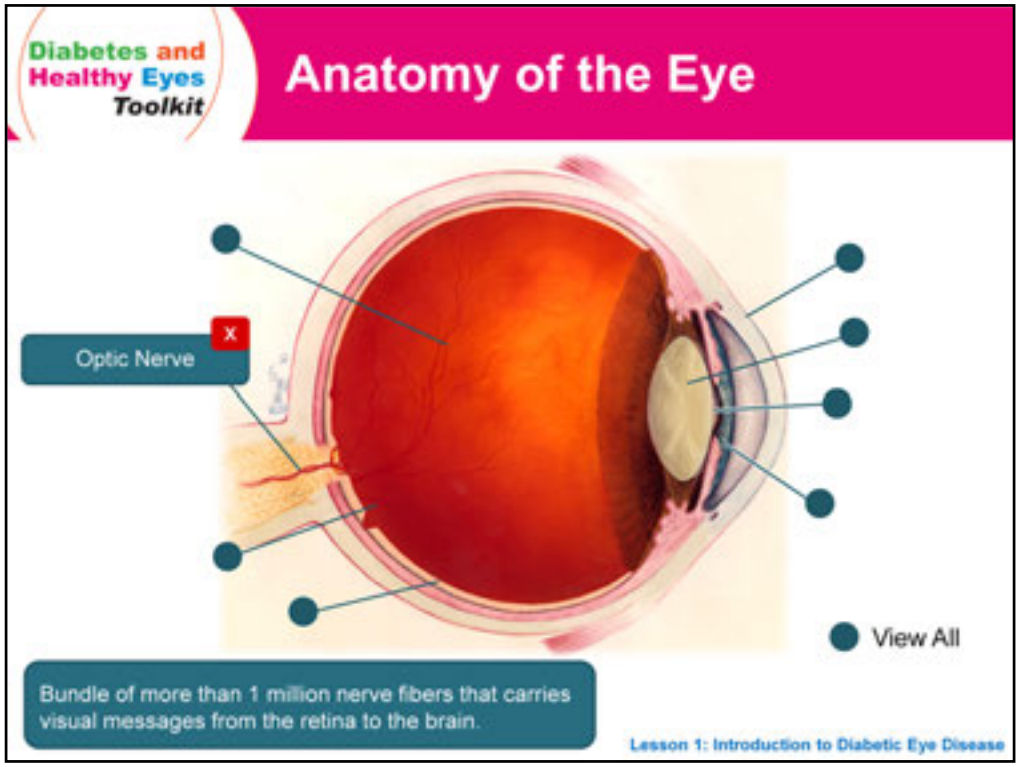


But first, let's explore the anatomy of the eye. This will help us to better understand the parts of the eye that are affected by diabetes. Select each part of the eye to view its definition. Select the "X" button to close each box.

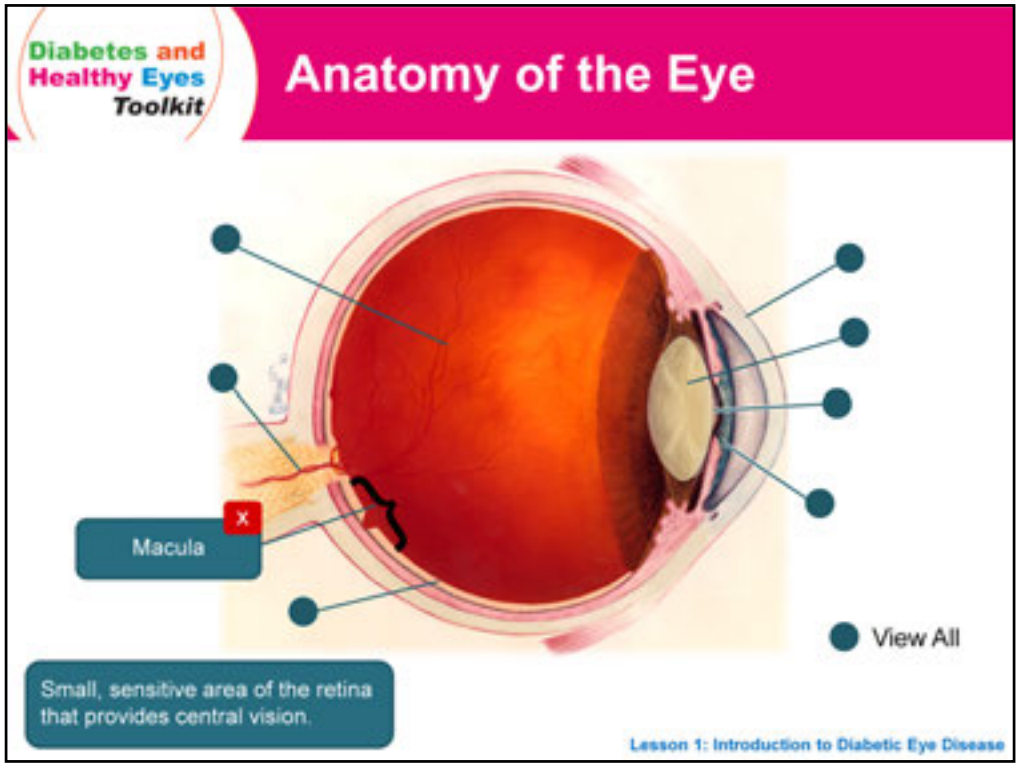
Select the button at the bottom of the screen to download a handout on the Anatomy of the Eye.



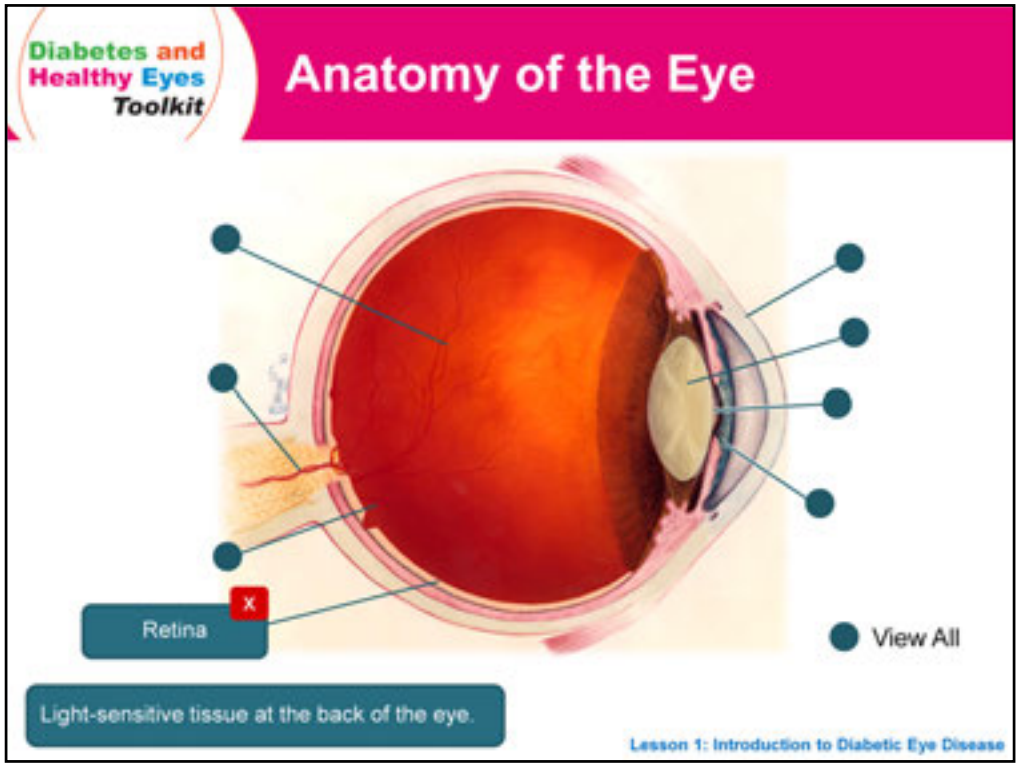
The vitreous gel is a clear gel that fills the inside of the eye.



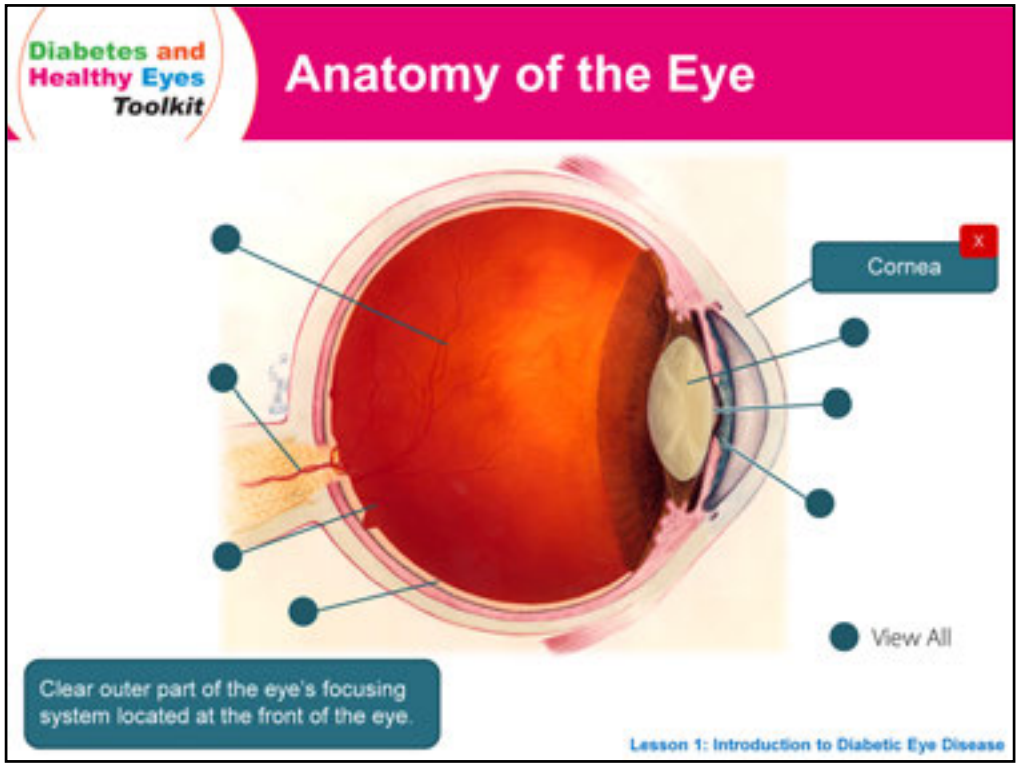
The optic nerve is the largest sensory nerve of the eye. It carries visual messages from the retina to the brain.



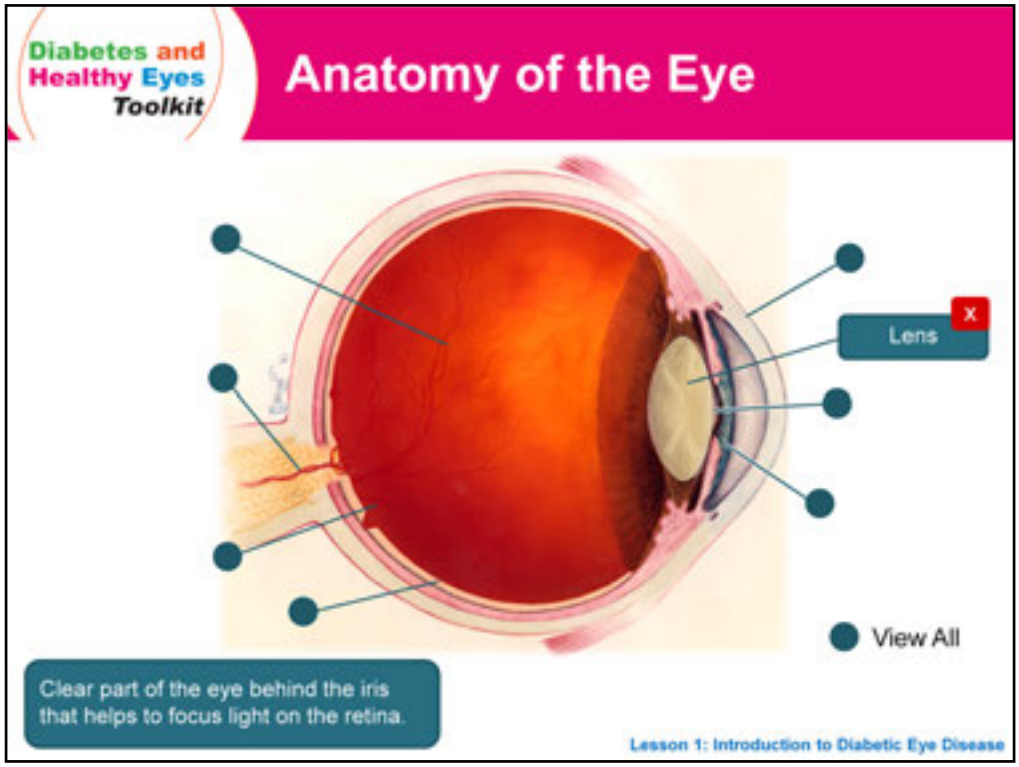
The macula is a small, sensitive area of the retina that provides central vision. It is located in the center of the retina.



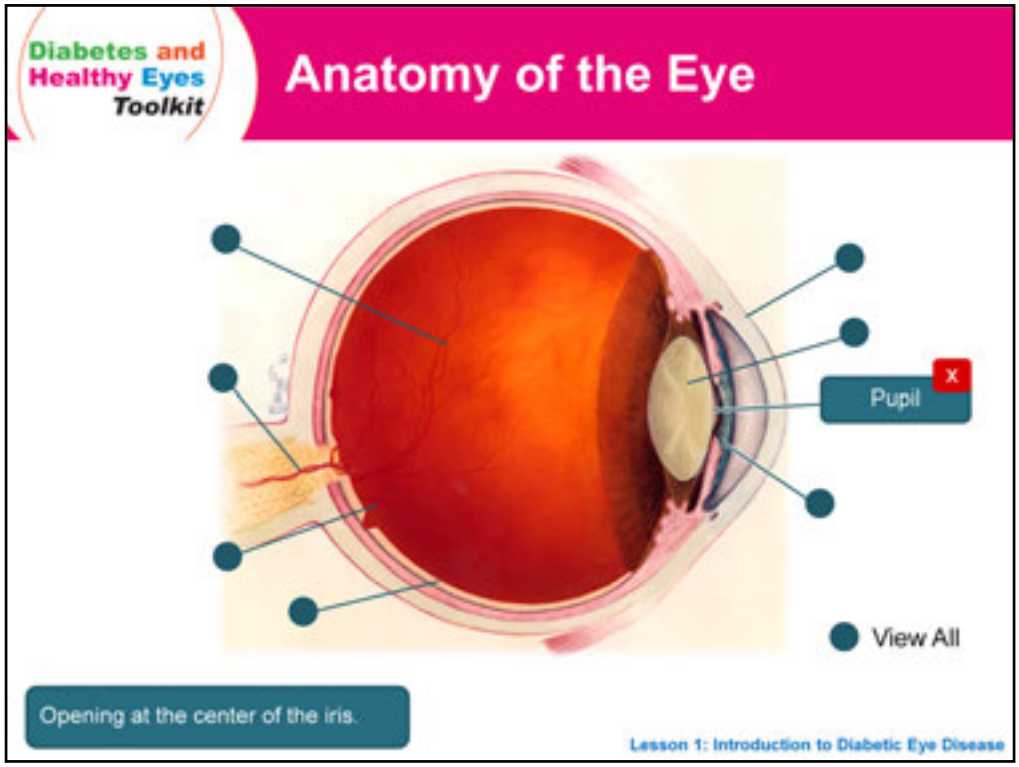
The retina is a light-sensitive tissue at the back of the eye. The retina converts light into electrical impulses that are sent to the brain through the optic nerve.



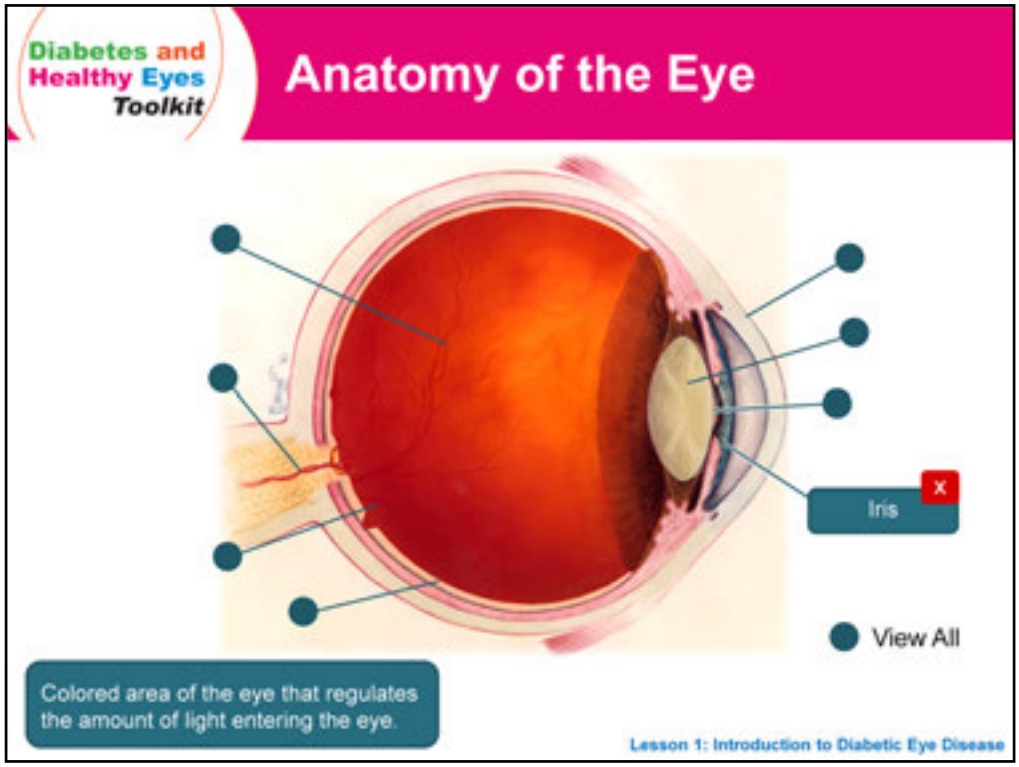
The cornea is the clear outer part of the eye's focusing system. It is located at the front of the eye.



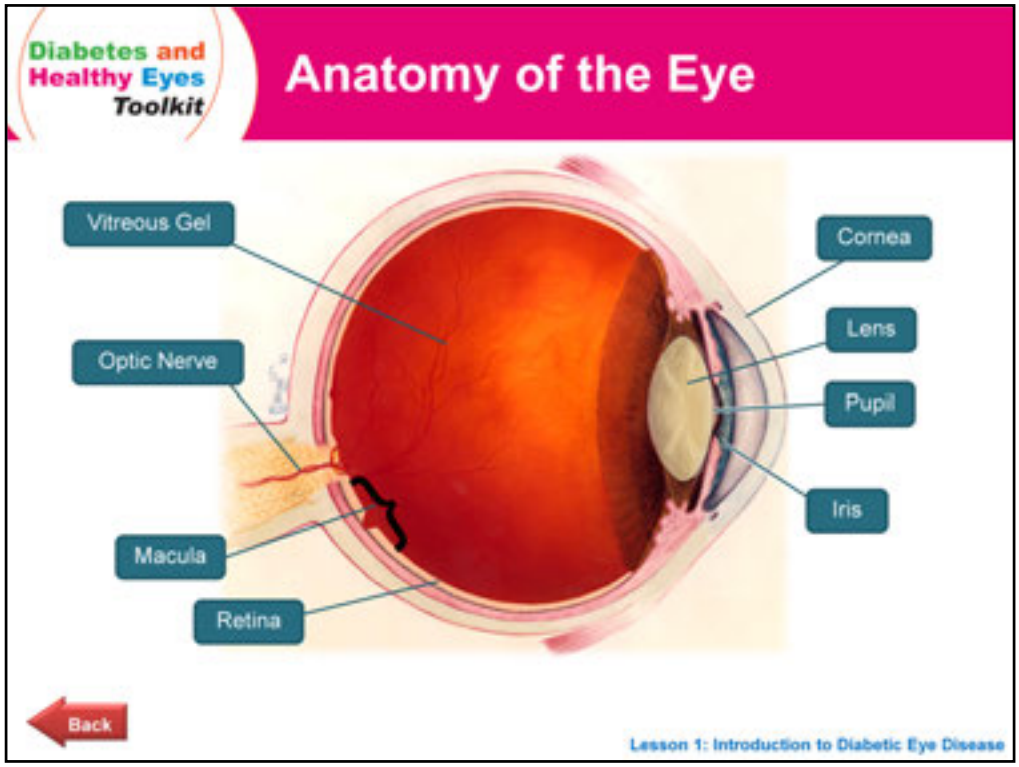
The lens is a clear part of the eye behind the iris. It helps to focus light on the retina.



The pupil is the opening at the center of the iris. The iris adjusts the size of the pupil and controls the amount of light that can enter the eye.



The iris is the colored area of the eye that regulates the amount of light entering the eye.



Each of the parts of the eye is labeled: vitreous gel, optic nerve, macula, retina, cornea, lens, pupil, and iris.

As we learned, people with diabetes are at higher risk for eye complications such as cataract, diabetic retinopathy, and glaucoma, all of which can cause vision loss or blindness.

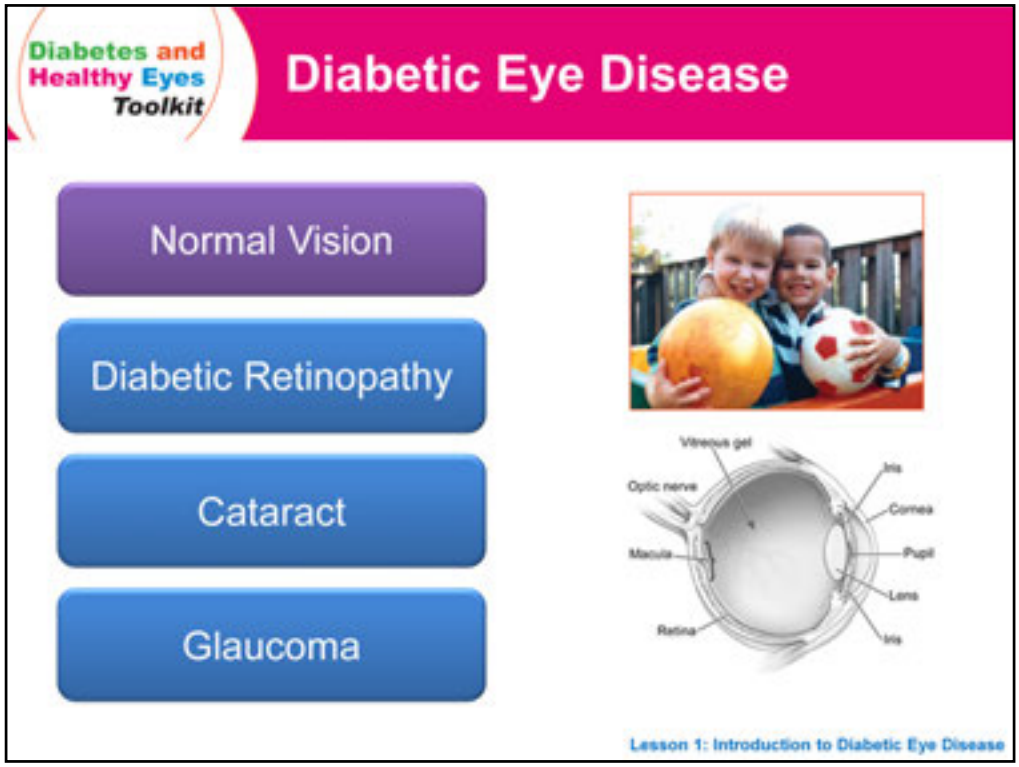
Diabetic retinopathy causes damage to the small blood vessels in the retina.

A cataract clouds the lens of the eye and makes a person's vision blurry.

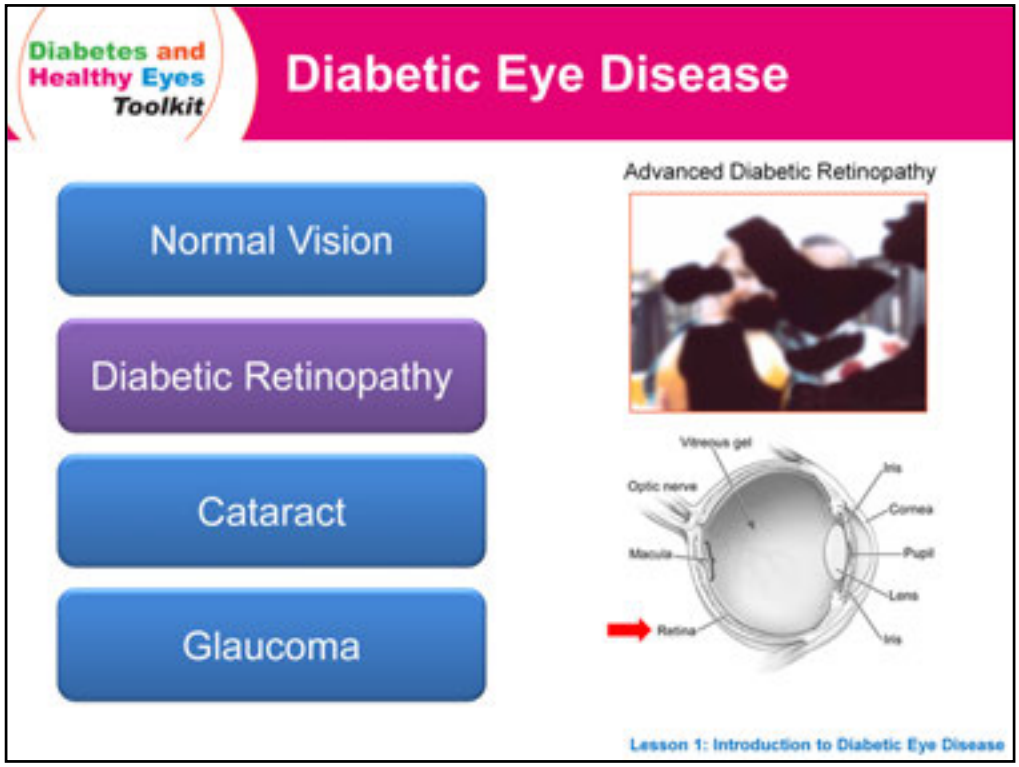
Glaucoma causes damage to the optic nerve and affects side, or peripheral, vision.

Fortunately, cataract, diabetic retinopathy, and glaucoma are all treatable in their early stages. Vision loss and blindness can be prevented if these diseases and conditions are detected early through a comprehensive dilated eye exam.

Take some time now to learn more about these diseases and conditions by selecting each button.



This image shows what a person with normal vision would see.



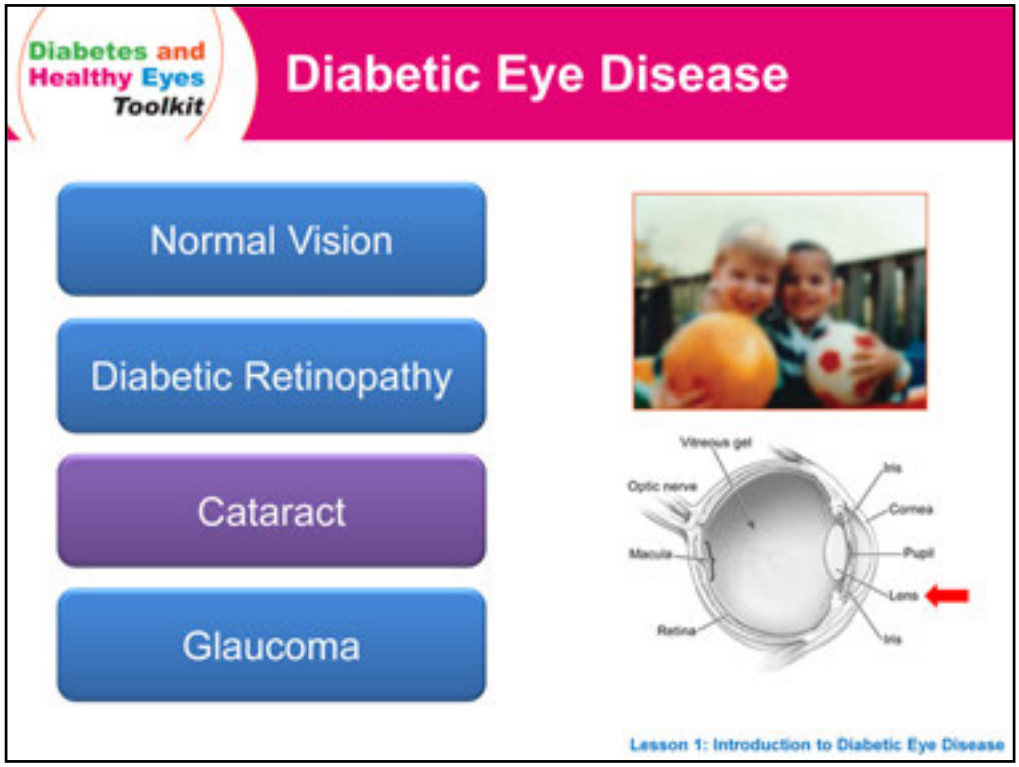
This image shows what a person with diabetic retinopathy would see.

Diabetic retinopathy is an eye complication of diabetes that damages the small blood vessels in the retina. The eyesight of a person with diabetic retinopathy can be damaged due to various causes:

- Bleeding
- Detachment of the retina
- Presence of abnormal blood vessels in the retina

There are often no symptoms in the early stages of diabetic retinopathy. There is no pain, and vision may not change until the disease becomes severe. The longer someone has diabetes, the more likely he or she will get diabetic retinopathy.

With early detection and treatment, vision loss due to diabetic retinopathy may be prevented. Treatment involves laser surgery, in which a strong light beam is aimed onto the retina. Laser surgery and appropriate follow-up care can reduce the risk of blindness by 90 percent.



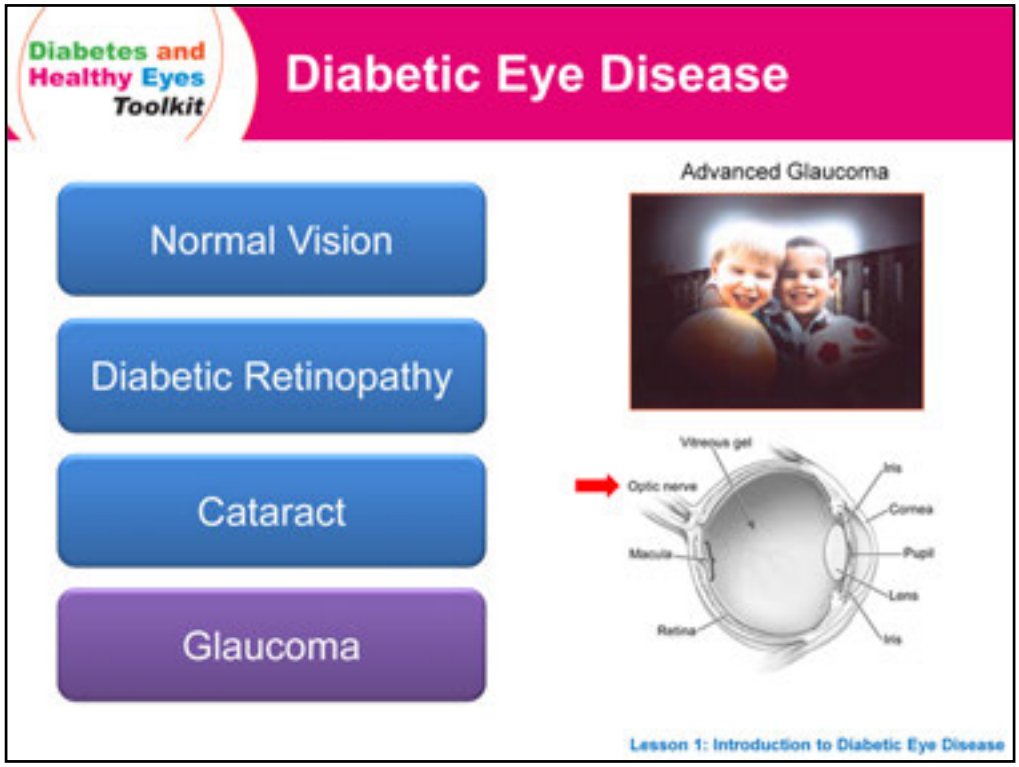
This image shows what a person with a cataract would see.

A cataract is a clouding of the lens in the eye that affects vision. Symptoms include—

- Cloudy and blurry vision
- Faded colors
- Poor night vision
- Double vision
- Problems with bright lights, especially at night

Cataract can occur in one or both eyes. It cannot spread from one eye to the other. In earlier stages, the cataract is visible only during an eye exam.

Symptoms of early cataract may be improved with new eyeglasses, brighter lighting, anti-glare sunglasses, or magnifying lenses. If these do not help, surgery is the only effective treatment. Cataract surgery is usually safe and successful; the cloudy lens is replaced with a plastic lens.



This image shows what a person with glaucoma would see.

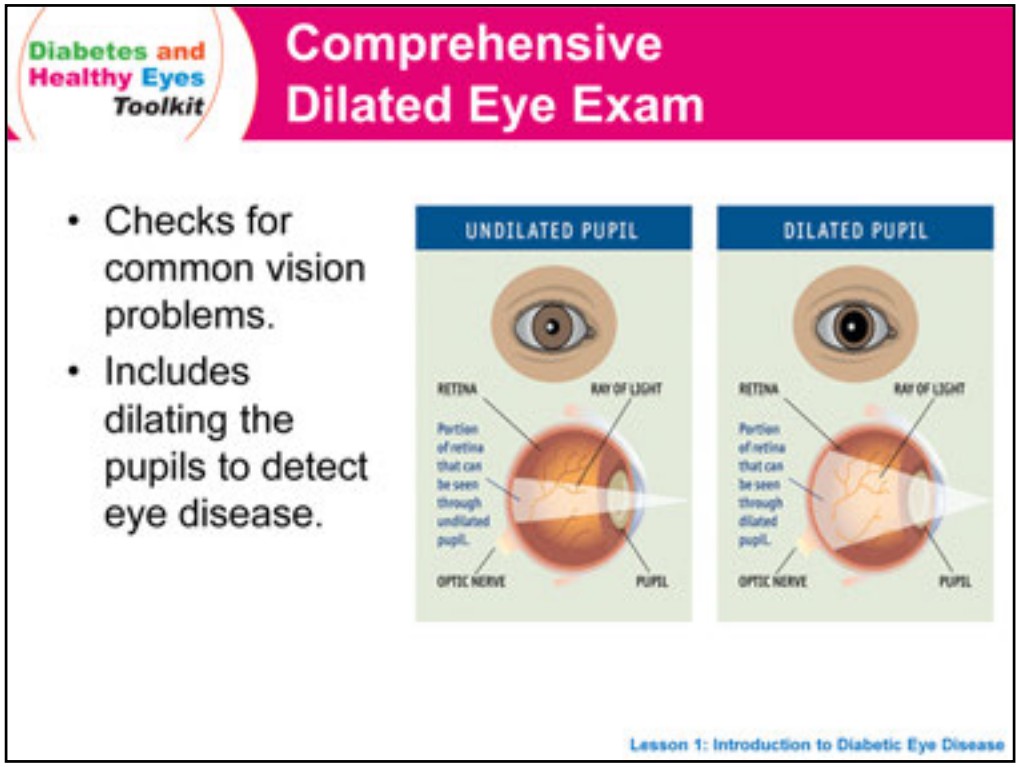
Glaucoma is a group of diseases that can damage the optic nerve and result in vision loss and blindness. It may be caused by an increase in eye pressure. However, in some forms of glaucoma, eye pressure is normal.

A form of the disease called open-angle glaucoma is diagnosed most often in the following groups of people:

- African-Americans ages 40 and older
- Everyone over age 60, especially Mexican-Americans
- People with a family history of glaucoma

People with diabetes are at an increased risk for an aggressive type of glaucoma called neovascular glaucoma. In this form, abnormal blood vessels grow in the front part of the eye.

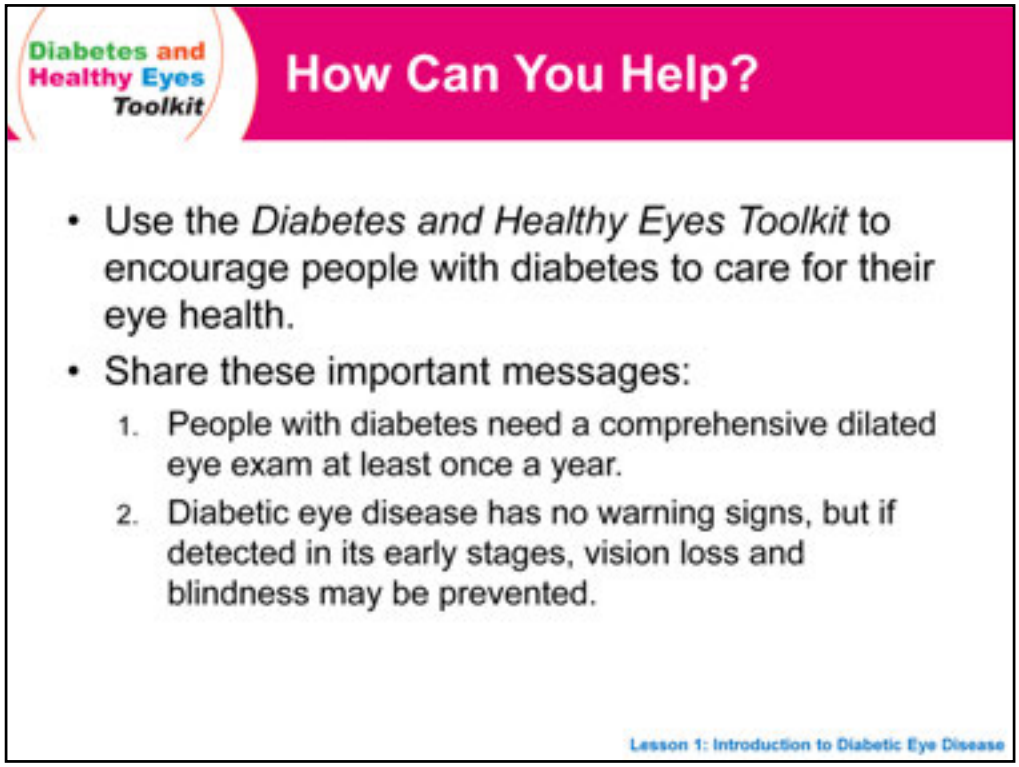
In the early stages, glaucoma often has no symptoms. Therefore, people may not realize they have glaucoma until the disease is advanced. Vision lost to glaucoma cannot be restored. However, with early detection and treatment, vision loss may be prevented or slowed down. Treatment options for glaucoma include medications such as prescription eye drops or pills, or surgery.



Now let's talk about how these diseases are detected.

A comprehensive dilated eye exam is different from the exam you have for glasses and contacts. During a comprehensive dilated eye exam, an eye care professional dilates the eyes with drops to examine the health of the eye and to detect common vision problems or signs of disease.

Because there are often no signs or symptoms in the early stage of eye diseases, people should not wait to visit an eye care professional. Early detection and timely treatment can help prevent vision loss. People with diabetes should have a comprehensive dilated eye exam at least once a year.

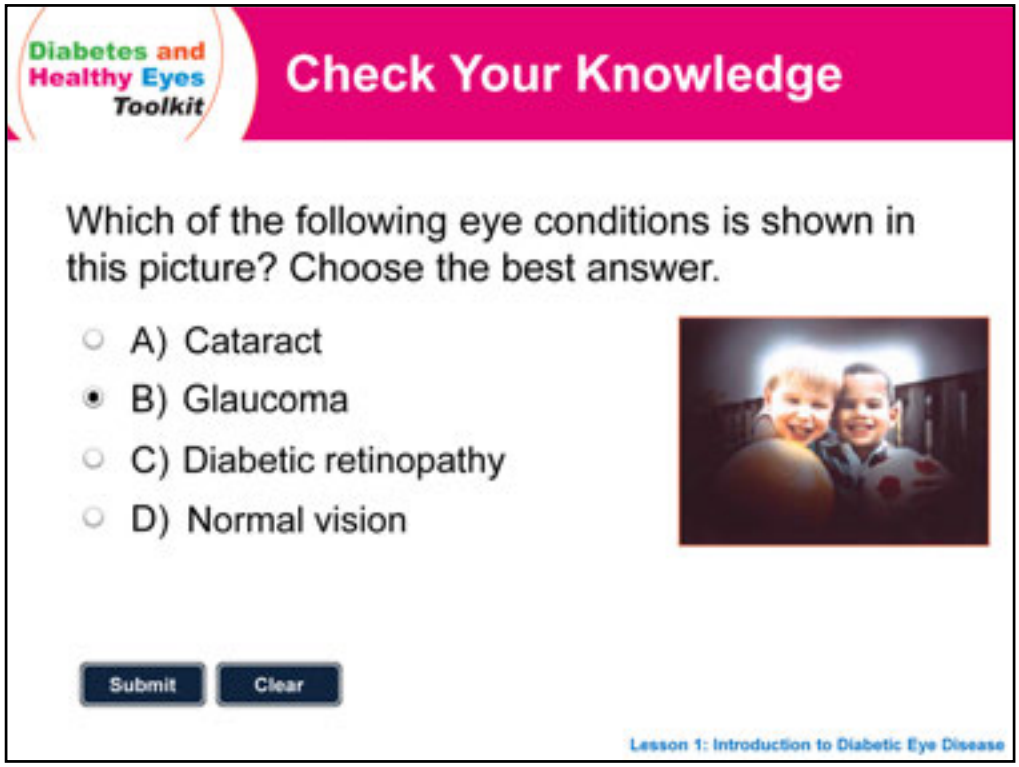


As a community health worker, you play an important role in helping people with diabetes maintain their vision.

You can—

- Use the *Diabetes and Healthy Eyes Toolkit* to encourage people with diabetes to care for their eye health.
- Share these important messages:
    1. People with diabetes need a comprehensive dilated eye exam at least once a year.
    2. Diabetic eye disease has no warning signs, but if detected in its early stages, vision loss and blindness may be prevented.

The *Diabetes and Healthy Eyes Toolkit* developed by the National Eye Health Education Program will guide you in carrying out these activities.

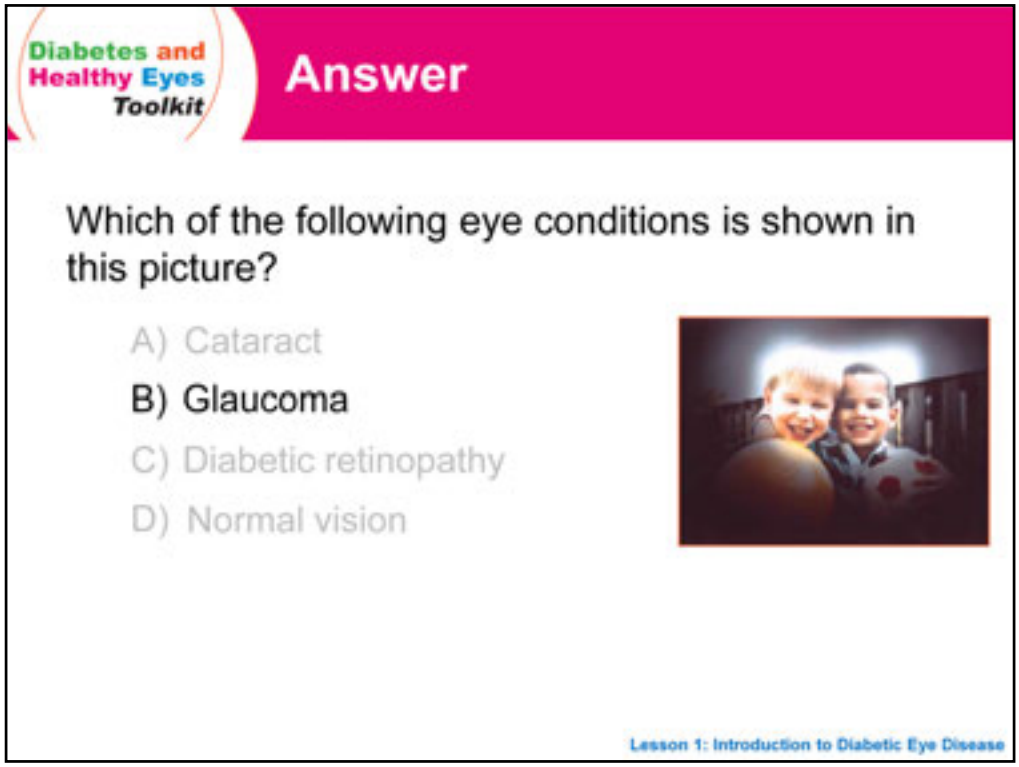


Now, let's check what you have learned so far. Take a look at the picture.

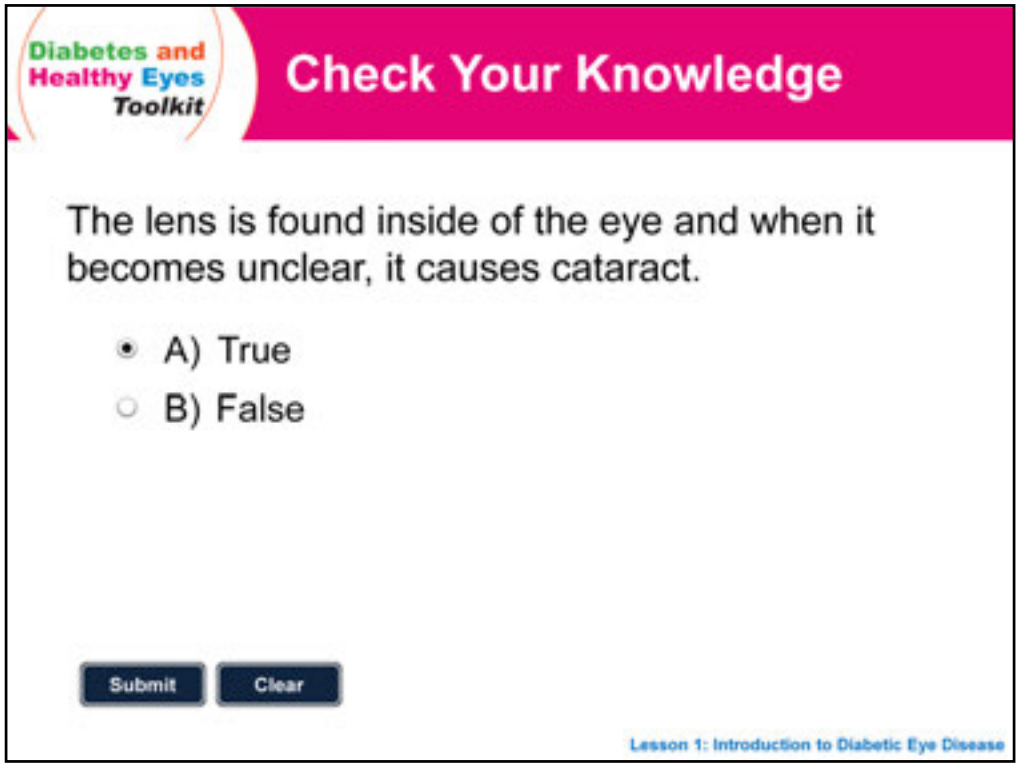
Which of the following eye conditions is shown in this picture?

A. Cataract
B. Glaucoma
C. Diabetic retinopathy
D. Normal vision

Choose the best answer and select the "Submit" button.



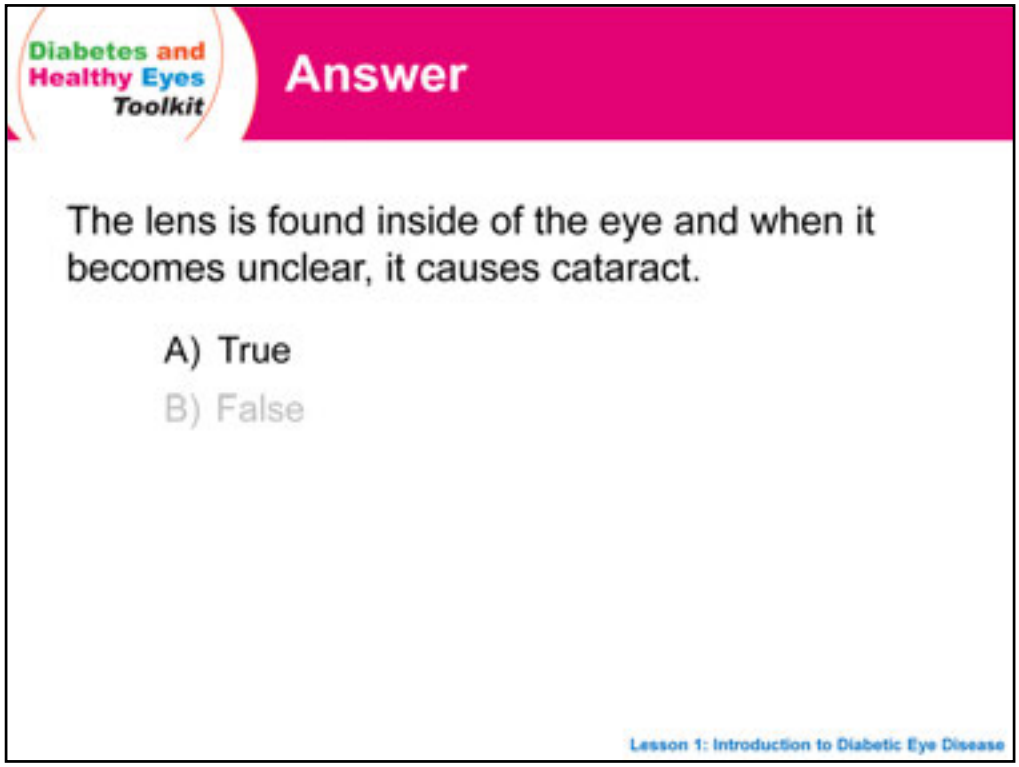
The correct answer is B. Glaucoma. Glaucoma caused by diabetes damages the optic nerve and affects side, or peripheral, vision.



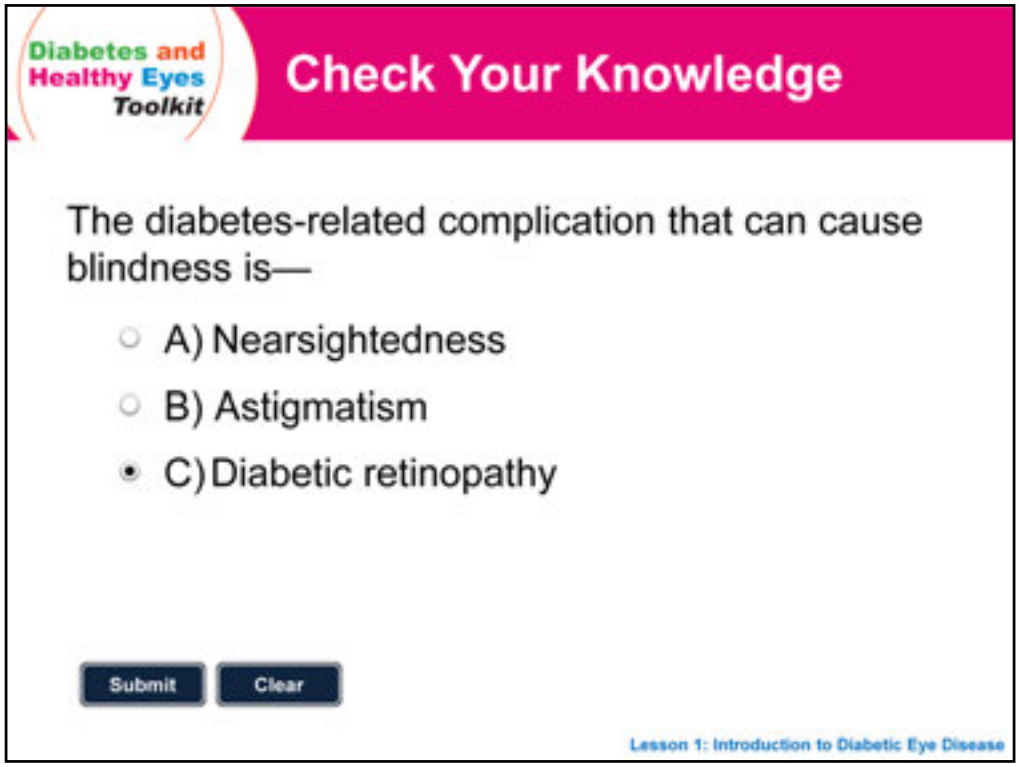
The lens is found inside of the eye and when it becomes unclear, it causes cataract.

A. True

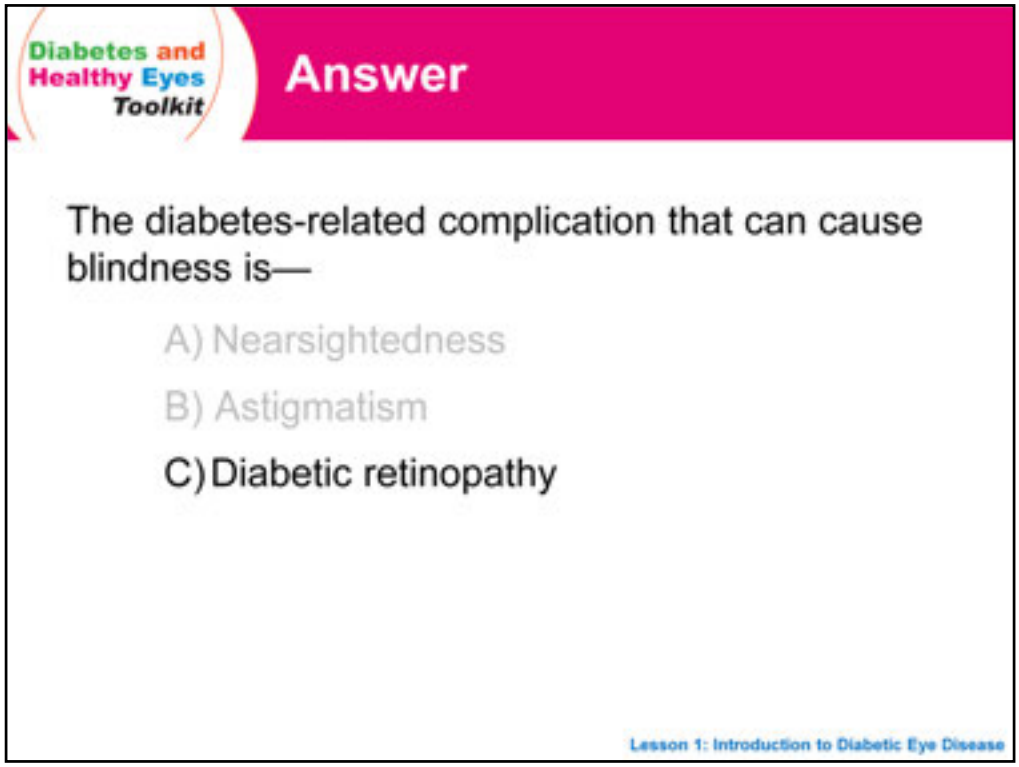
B. False



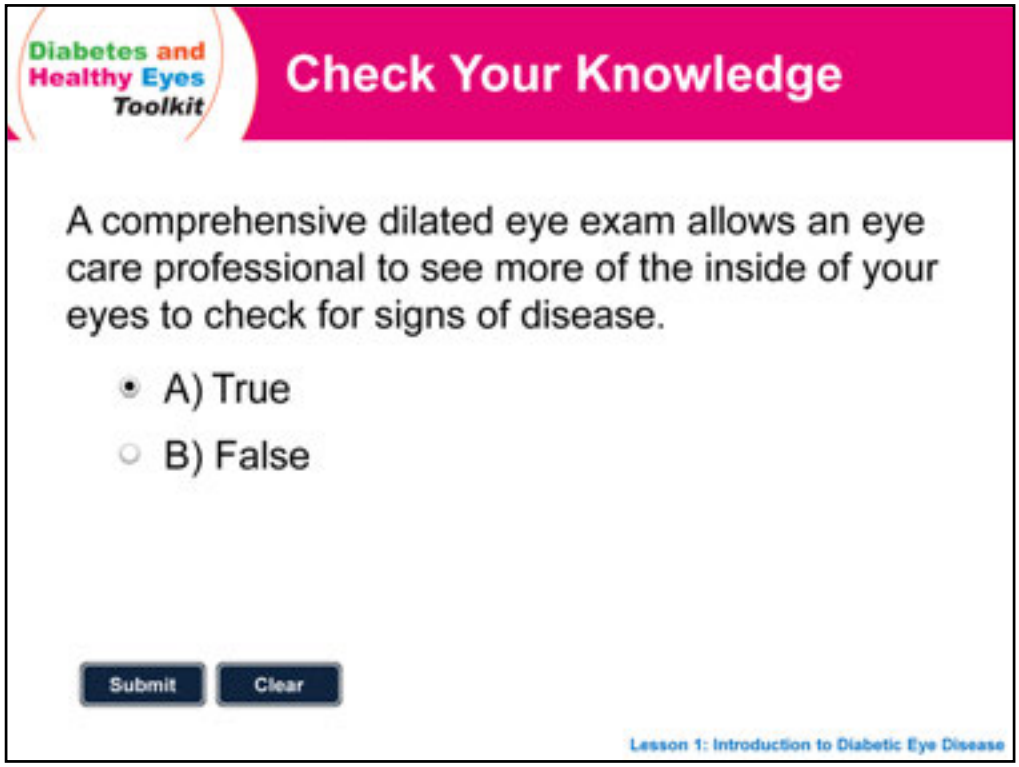
The correct answer is A. True. Cataract is caused when the lens inside of the eye becomes unclear.



The diabetes-related complication that can cause blindness is—
A. Nearsightedness
B. Astigmatism
C. Diabetic retinopathy



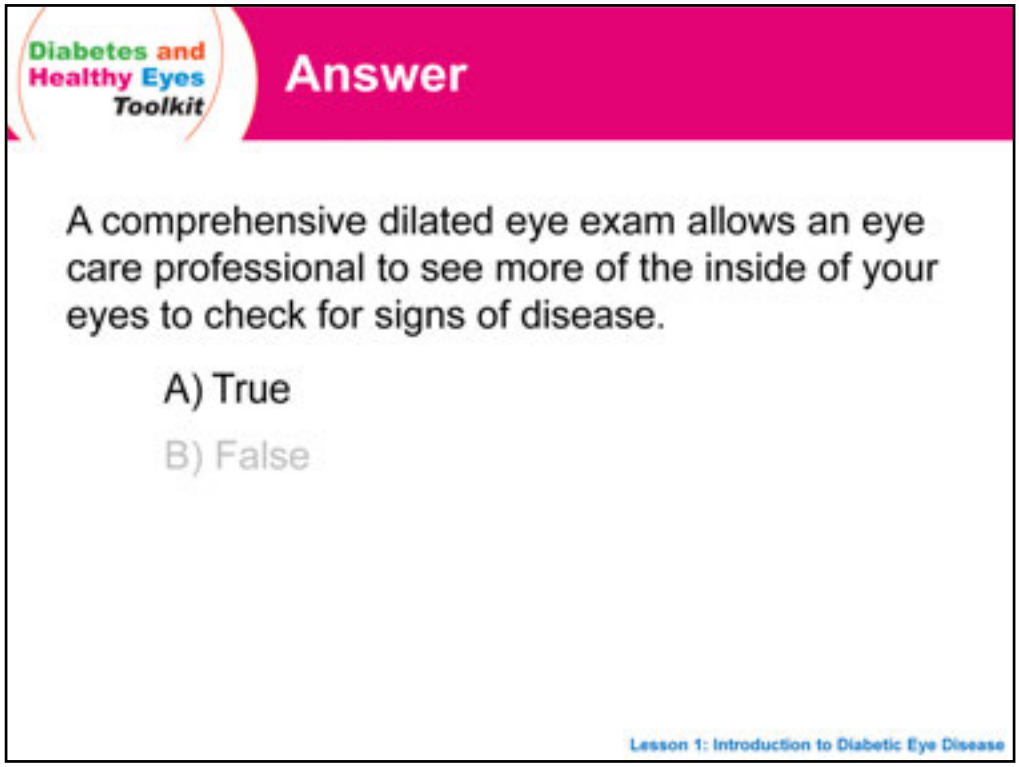
The correct answer is C. Diabetic retinopathy. Diabetic retinopathy is a diabetes-related complication that can cause blindness.



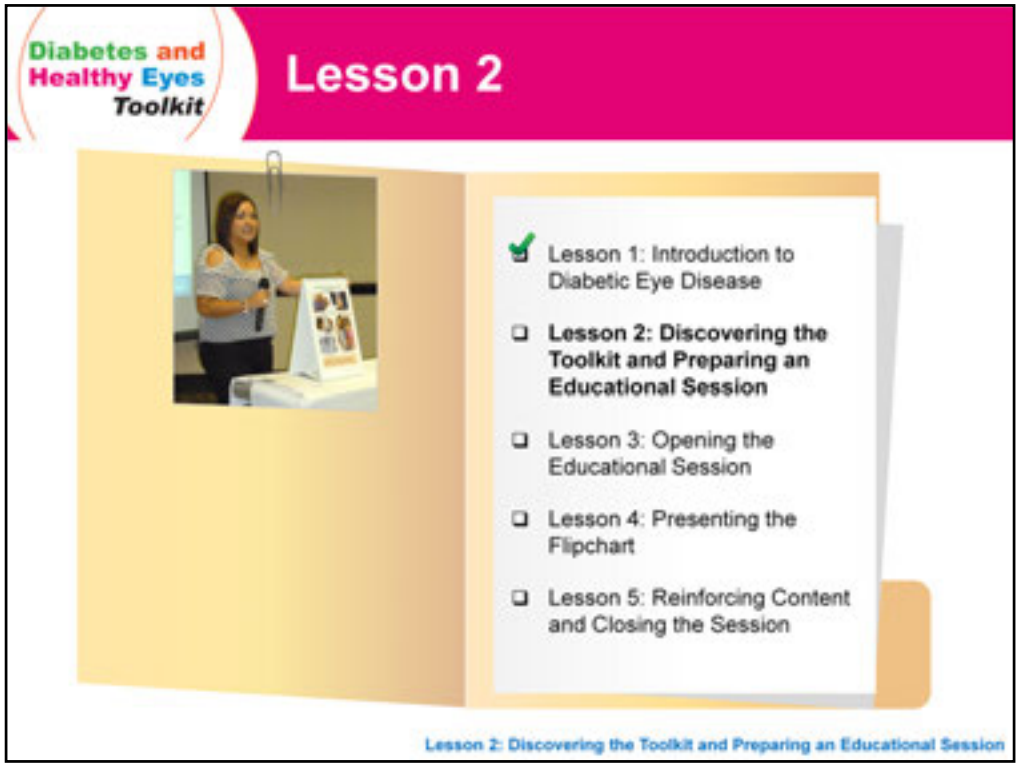
A comprehensive dilated eye exam allows an eye care professional to see more of the inside of your eyes to check for signs of disease.

A. True

B. False

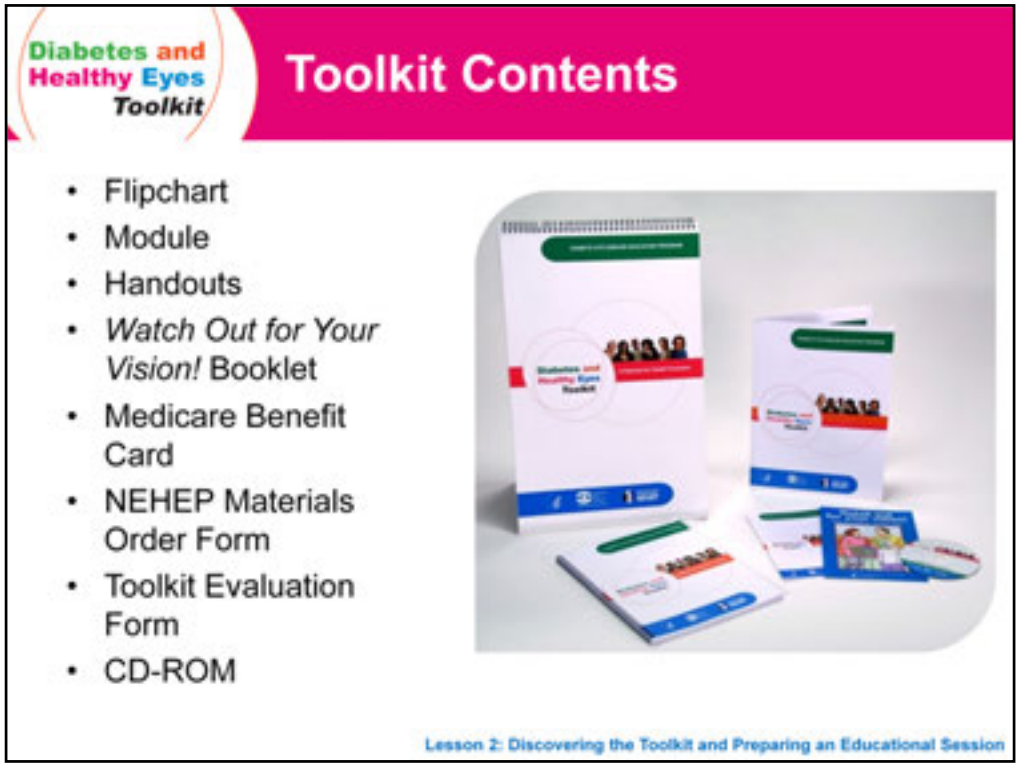


The correct answer is A. True. A dilated eye exam allows an eye care professional to see more of the inside of your eyes to check for signs of disease.



Congratulations! You have completed Lesson 1. Now let's move on to Lesson 2: Discovering the Toolkit and Preparing an Educational Session.

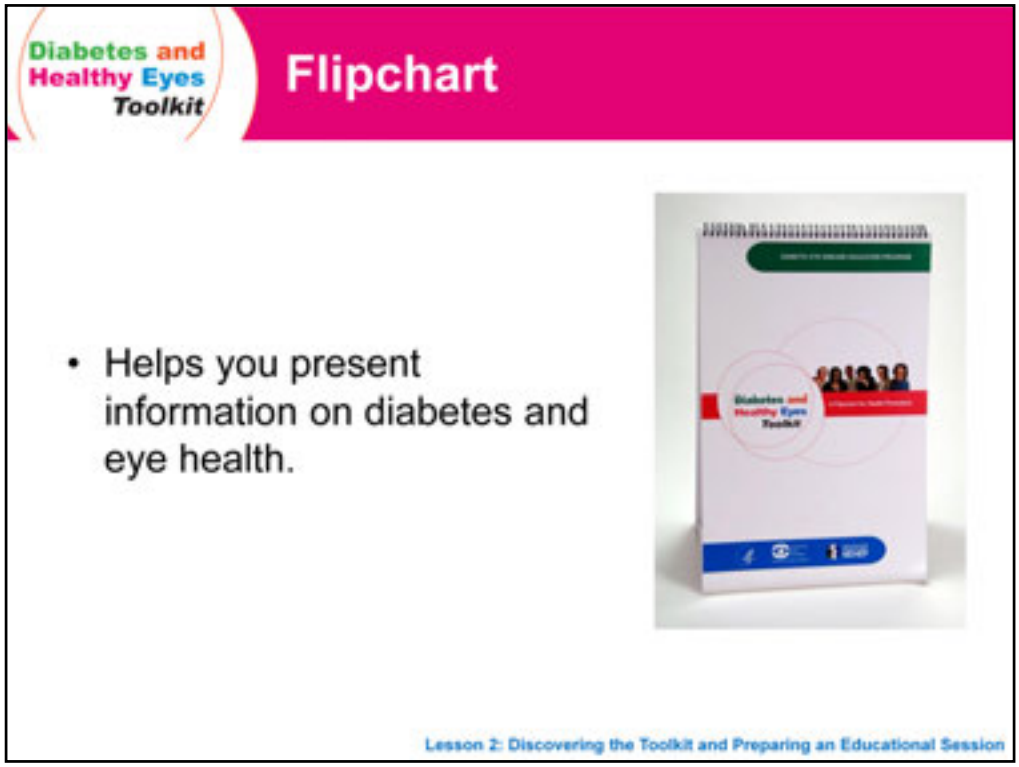
In this lesson, you will learn about the toolkit flipchart, module, and handouts. You'll also learn how to prepare for an educational session.



The toolkit has many resources to help you, including—

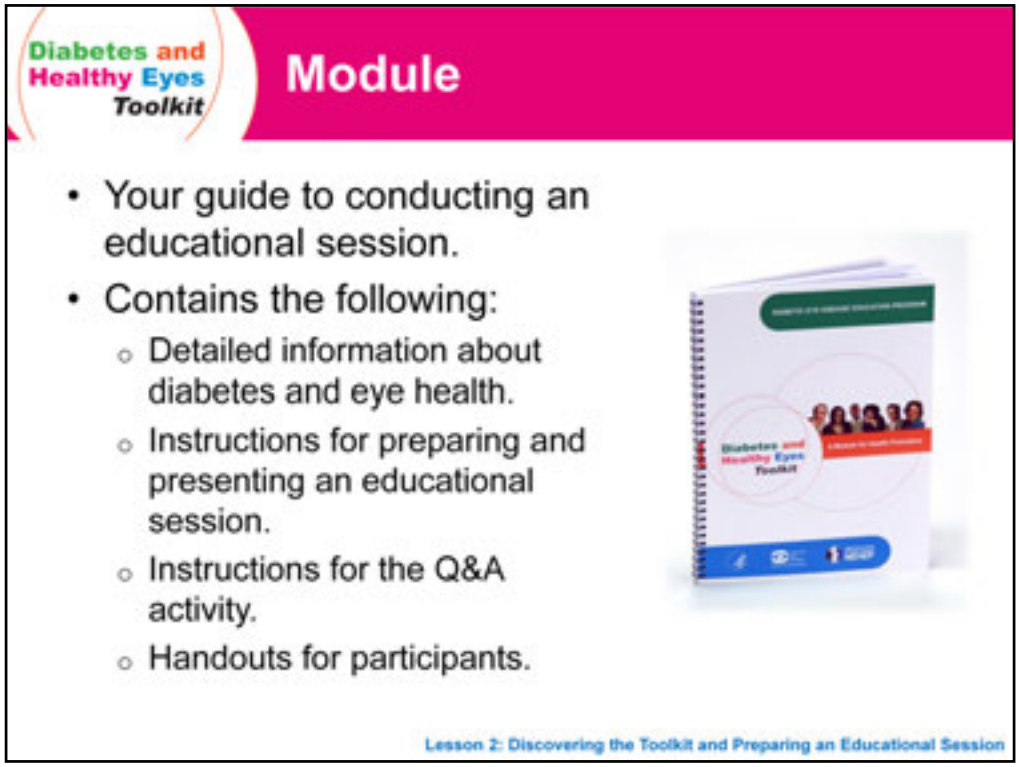
- A Flipchart
- Module
- Handouts
- *Watch Out for Your Vision!* Booklet
- Medicare Benefit Card
- NEHEP Materials Order Form
- Toolkit Evaluation Form
- A CD-ROM and more

We'll cover each of these in more detail on the next screens.



Let's start with the flipchart.

The flipchart helps you present information during the educational session. It contains information and images related to diabetes and eye health. On the front of each page, you will find information that participants will see. On the back of each page, you will find bullet points related to the topic you are presenting. These bullet points will help guide your discussion.



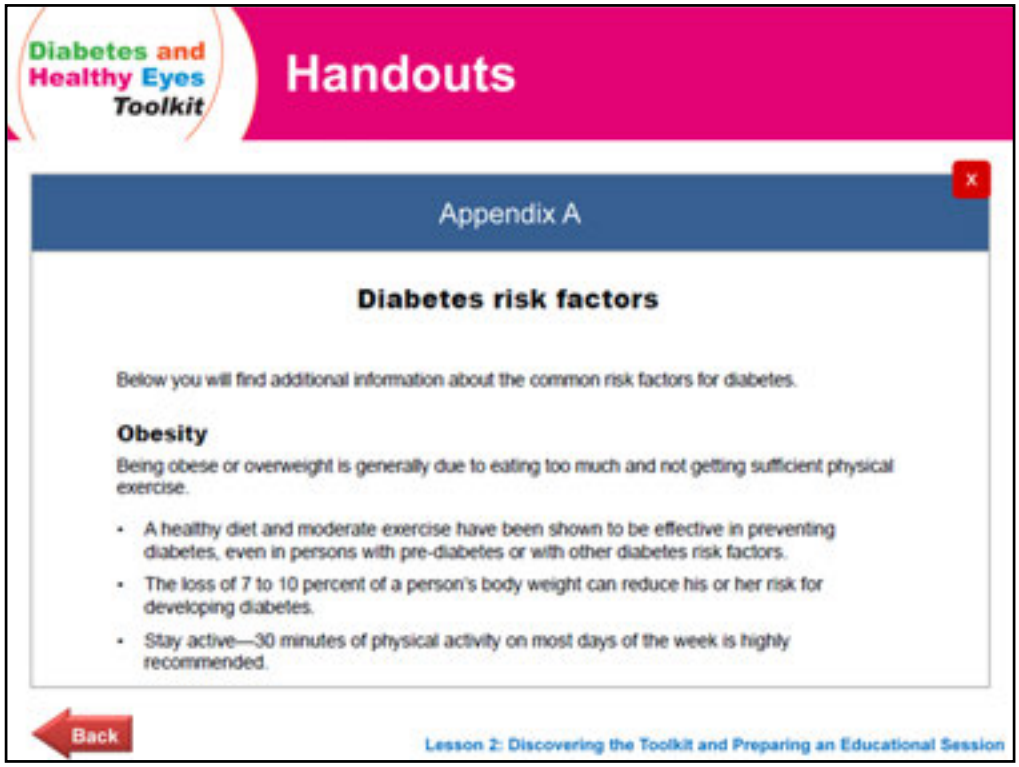
The module explains how to conduct an educational session. It serves as your guide and has detailed information on diabetes and eye health.

In the back of the module, you'll find several handouts. You can copy and distribute these to participants to help reinforce the content of the educational session.

Before you conduct an educational session, you should review the module. This will help you answer questions that participants might ask.

As you get ready for your educational session, you should print out several copies of the handouts in the back of the module. These handouts summarize important information about managing diabetes and maintaining eye health.

Select each handout to learn more.

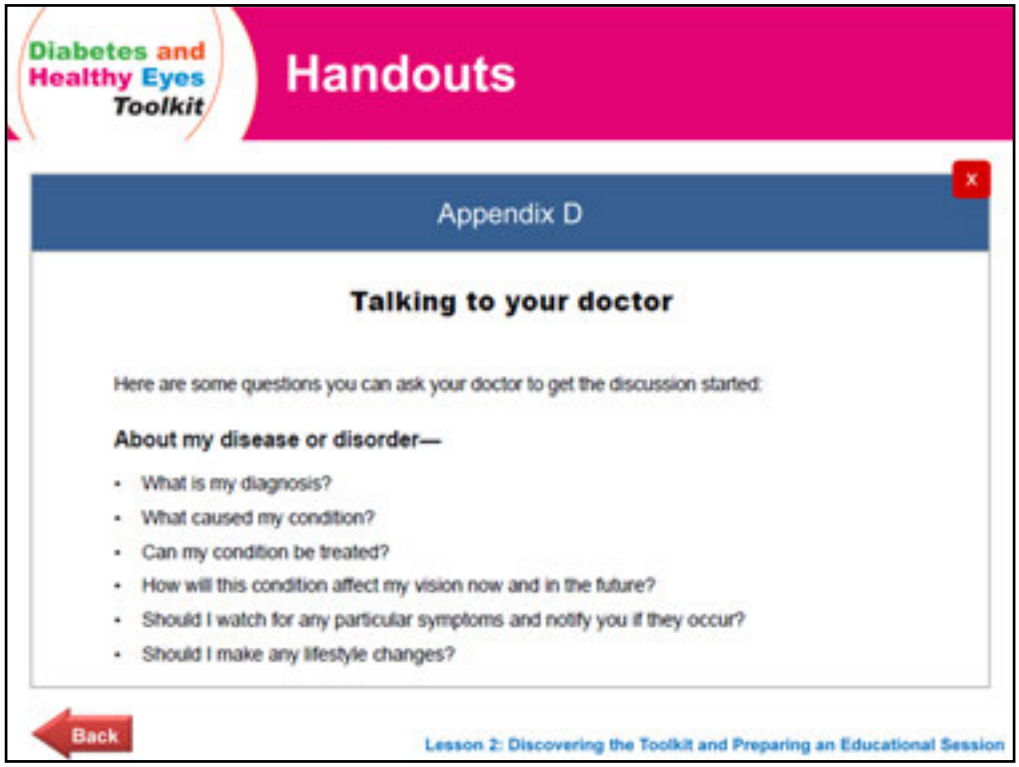


Appendix A lists diabetes risk factors.

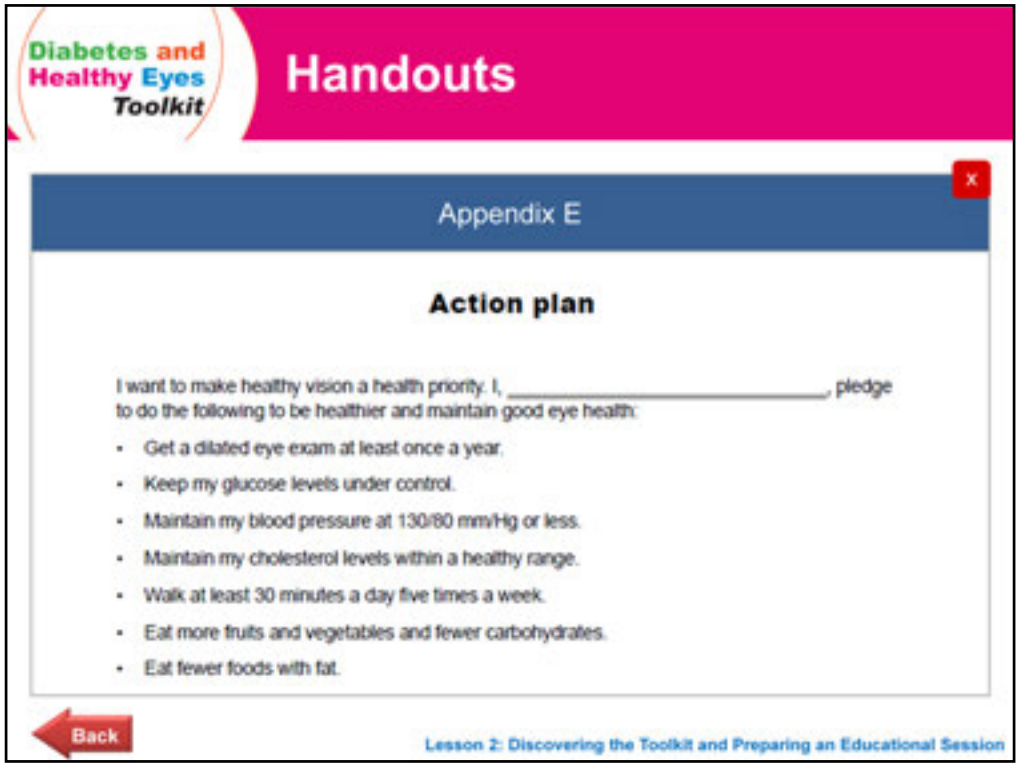
Appendix B presents the ABCs of diabetes control. This list provides guidelines for diabetes management and control.

Appendix C provides a template for listing local eye health team resources, such as certified diabetes educators, health promoters, nurses, clinics, pharmacists, and social workers.

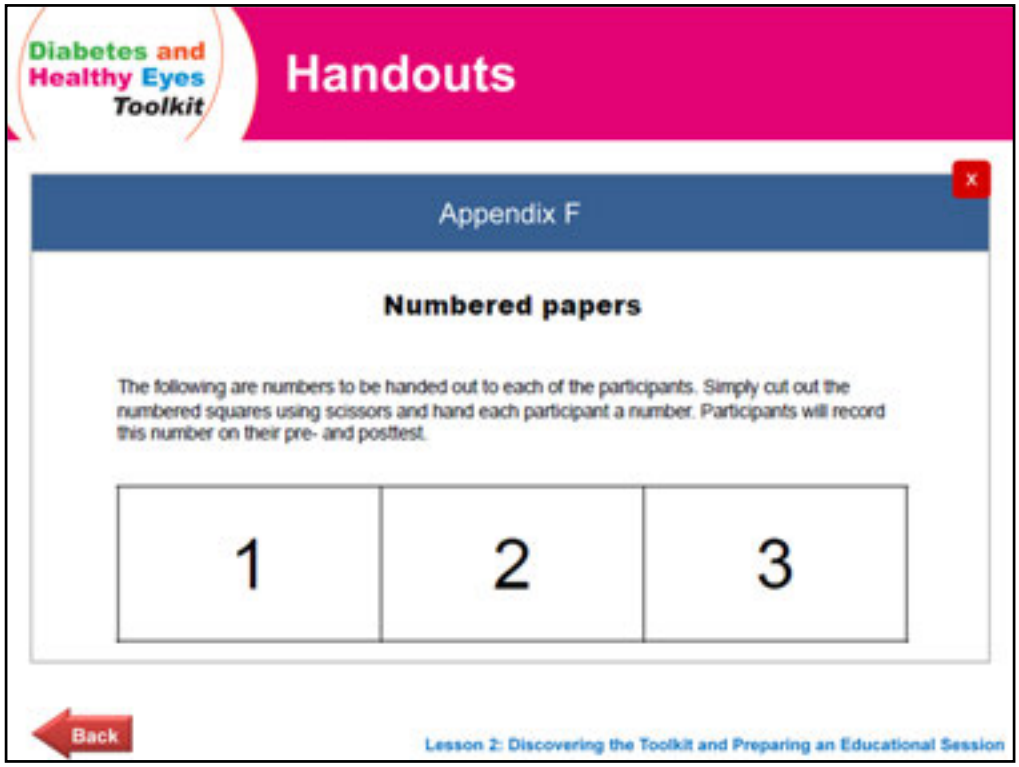
You should identify local health services and prepare this list before your educational session.



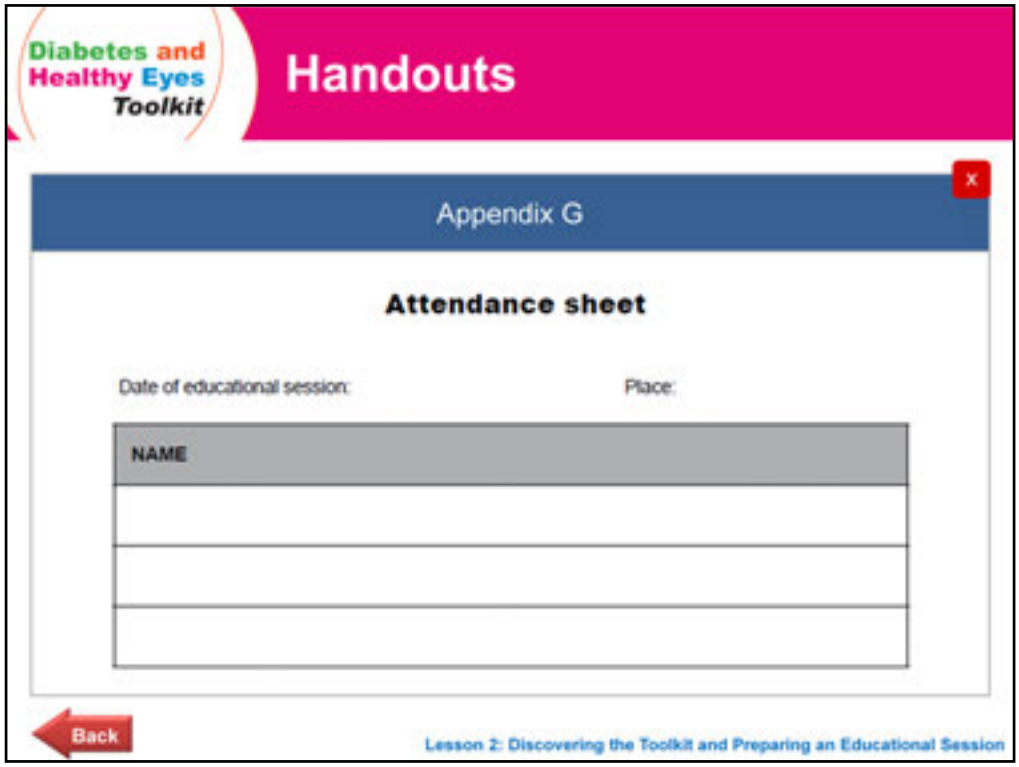
Appendix D presents some questions that participants can ask when talking to their doctors.



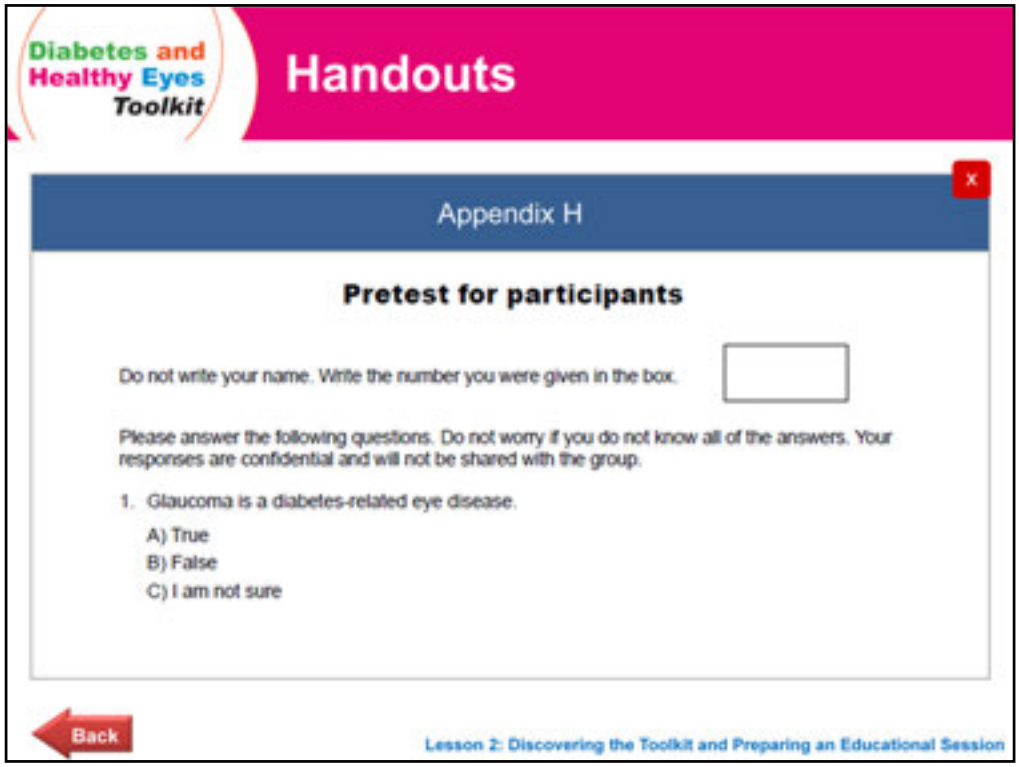
Appendix E presents an action plan or pledge that will help participants assume responsibility and take steps to protect their vision and overall health.



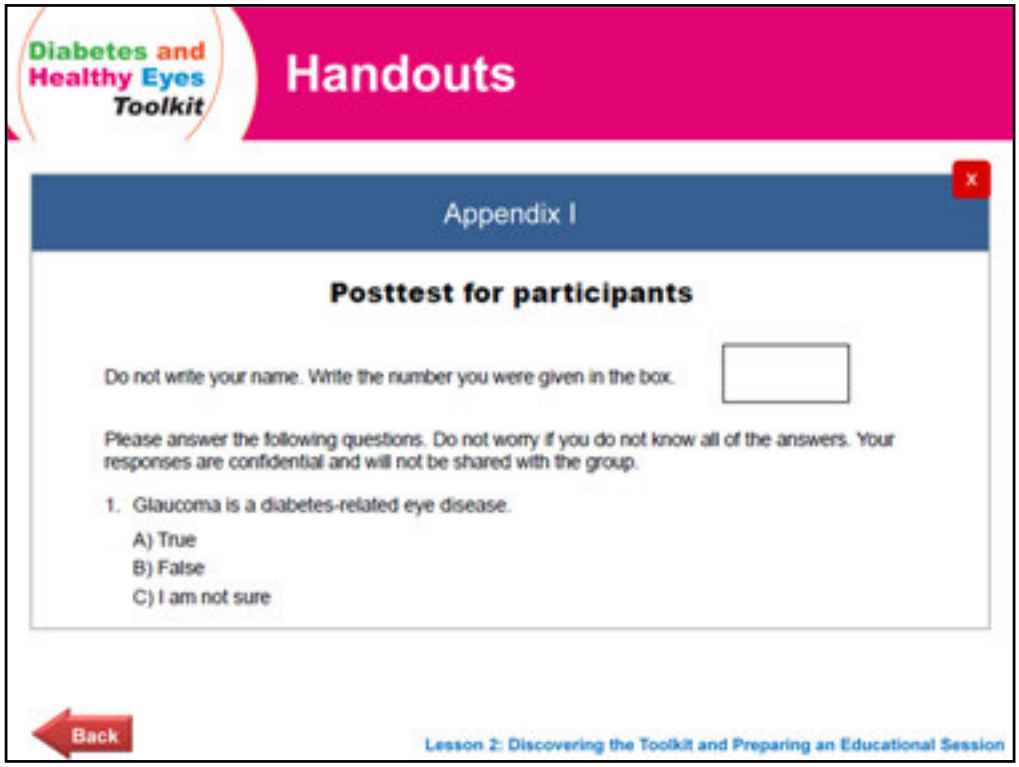
Appendix F contains numbered papers, from 1 to 15, that can be cut out and given to participants. Participants write their number on the pretest and on the posttest.



Appendix G is an attendance sheet.

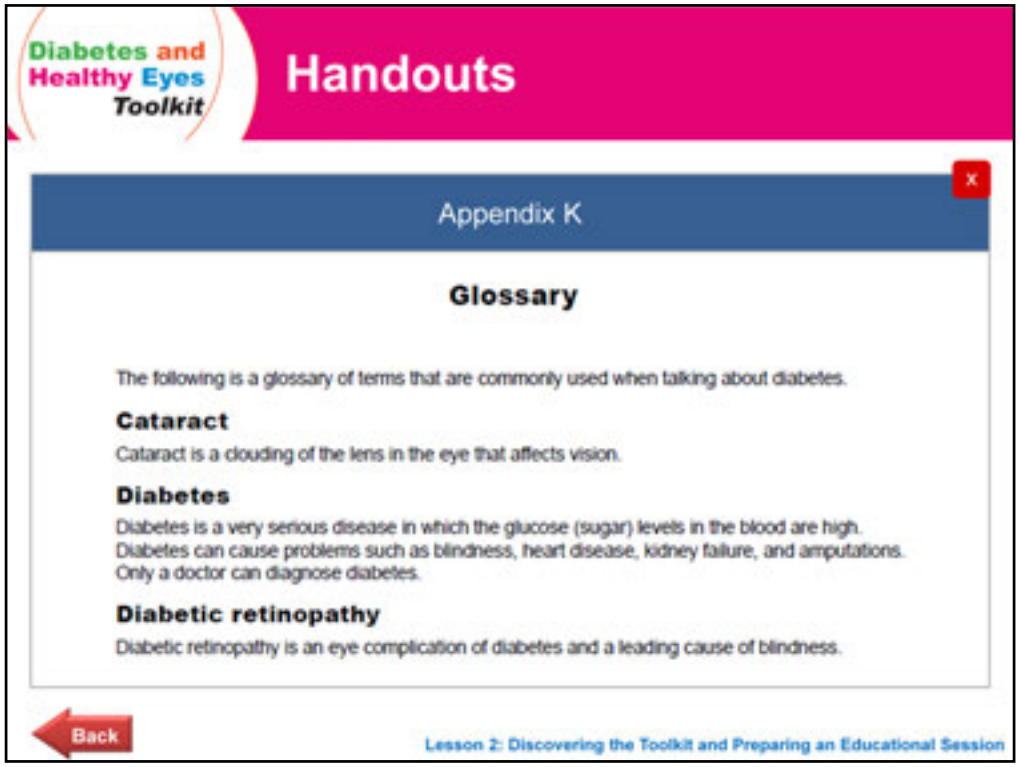


Appendix H is the pretest for participants.

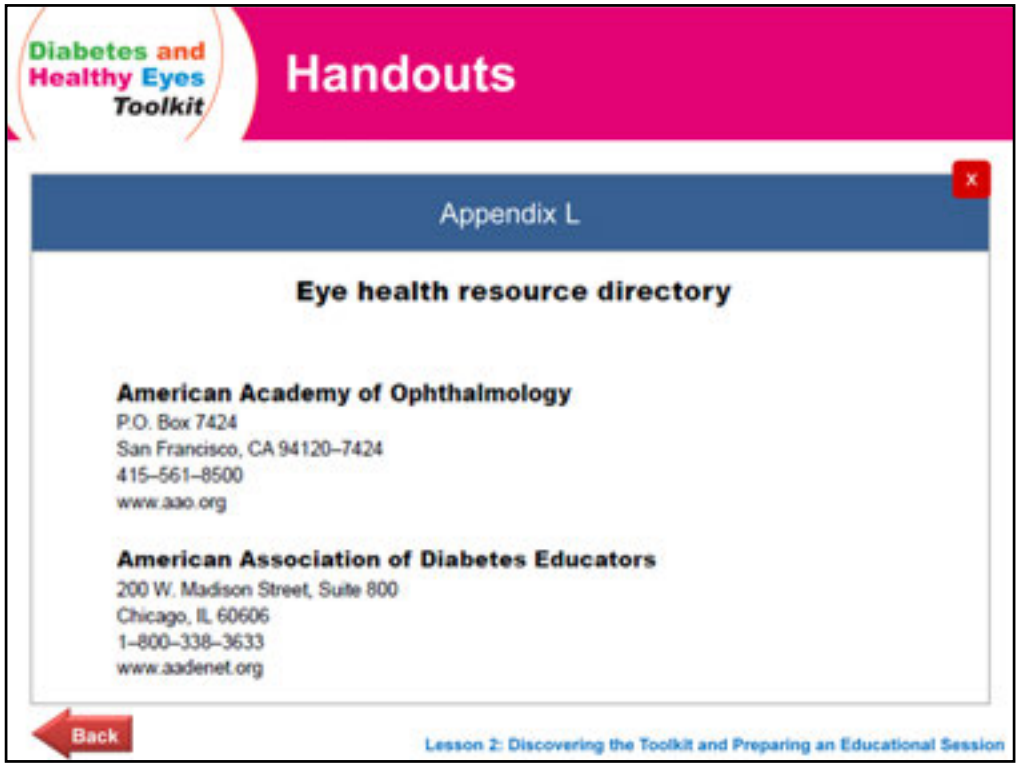


Appendix I is the posttest for participants. This appendix also contains the correct answers for the pre and posttests.

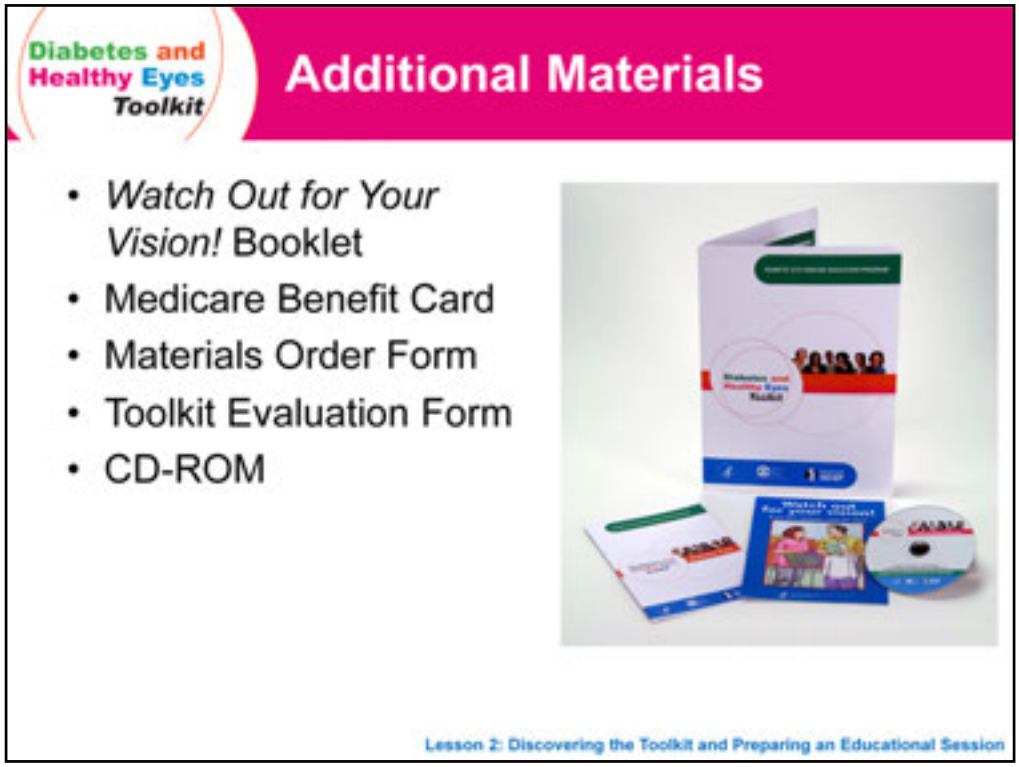
Appendix J is used to carry out the Question & Answer, or Q&A, activity, which we will describe in detail in the next lesson.



Appendix K is a glossary that provides brief explanations of diabetes and eye health concepts.



Appendix L is a directory of organizations working in eye health.

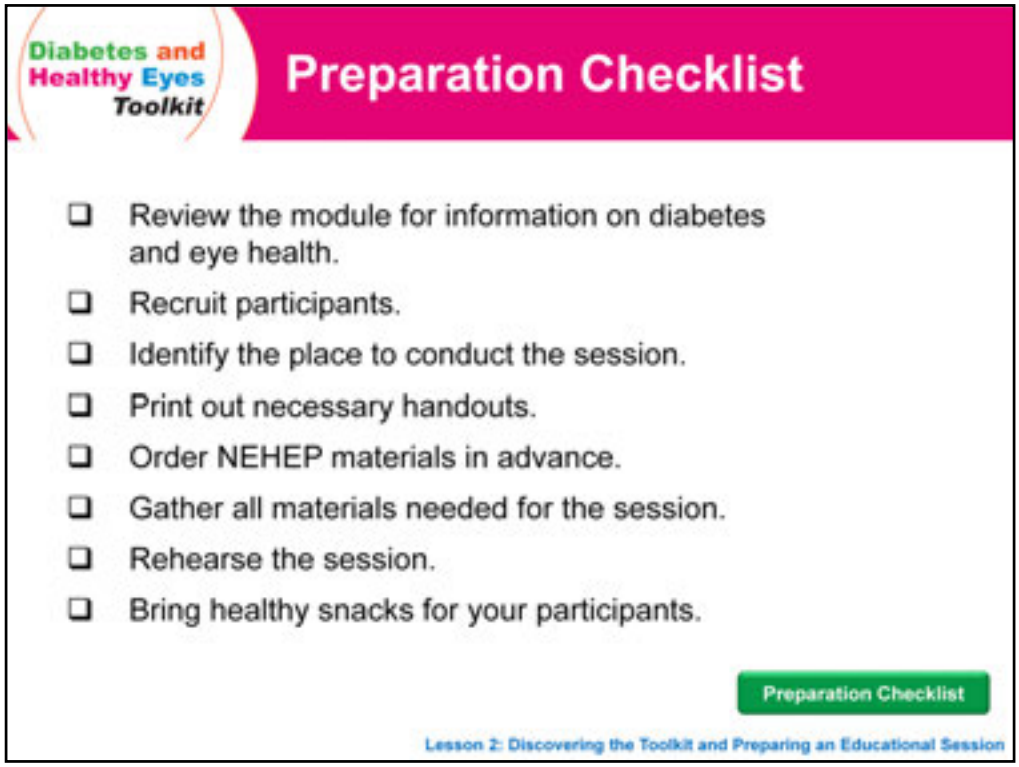


The toolkit also contains the following materials that will help you present an educational session:

- *Watch Out For Your Vision,* an illustrated booklet designed to help people with diabetes learn about the eye complications of diabetes and the importance of getting a comprehensive dilated eye exam.
- A Medicare Benefit Card, which describes eligibility for the diabetic eye disease and glaucoma benefit available through Medicare.
- An order form for you to order free diabetic eye disease materials for your educational session.
- An evaluation form so you can share your experience using the toolkit and provide any recommendations or suggestions to the National Eye Health Education Program.
- A CD-ROM containing copies of all the materials included in the toolkit.

When you prepare for an educational session, you'll need to make sure that you have your flipchart and module and an easel or table where you can place the flipchart.

You should also print or copy the handouts for participants. Don't forget to bring pens and pencils.



There is a lot to do to get ready for your educational session, so here is a checklist that you can follow. First, you should read the module to help you understand the basics of diabetic eye disease. This will help you answer questions that participants might have.

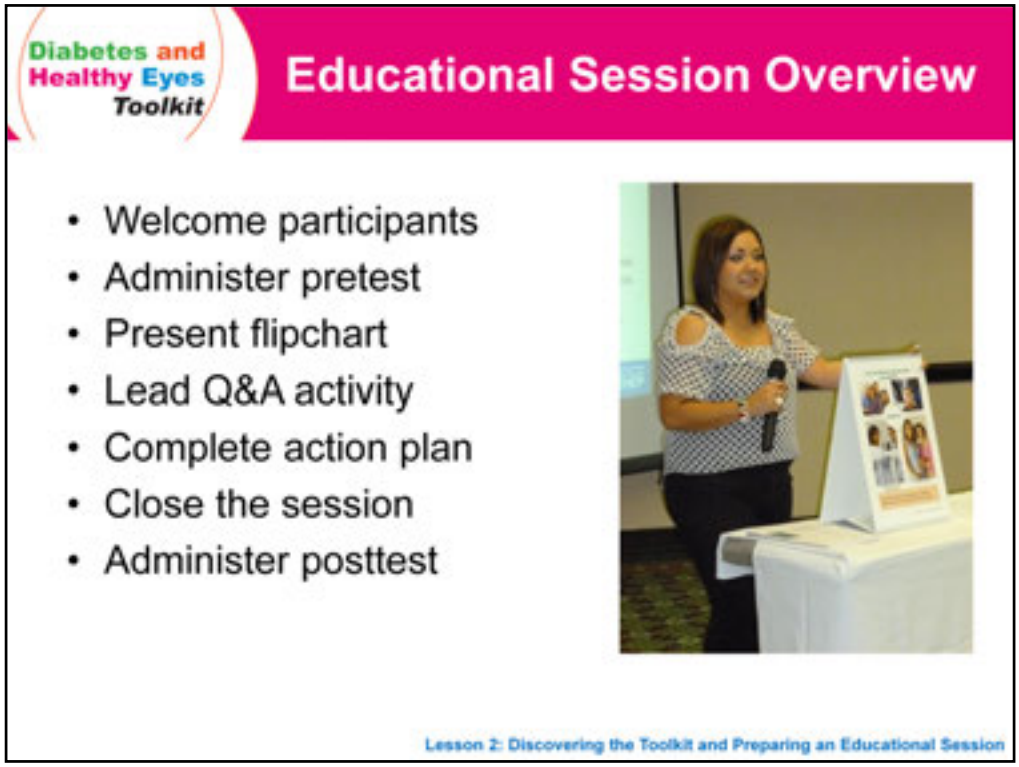
Second, you need to think about how you will recruit your participants, and also make sure you have a place to present your educational session. For example, at a community center or in a health clinic waiting room.

Third, print the participant handouts and gather all of the materials that you'll need for the session. Make sure you order publications on diabetic eye disease a few weeks in advance so you can get them in time for your session.

Next, try rehearsing the educational session with colleagues or by yourself so that you will know what to expect.

You may also want to bring some snacks for your participants. Remember to choose healthy snacks that are low in sodium, fat free, and sugar free to help support diabetes management.

If you would like a copy of this preparation checklist, select the button in the right-hand corner.



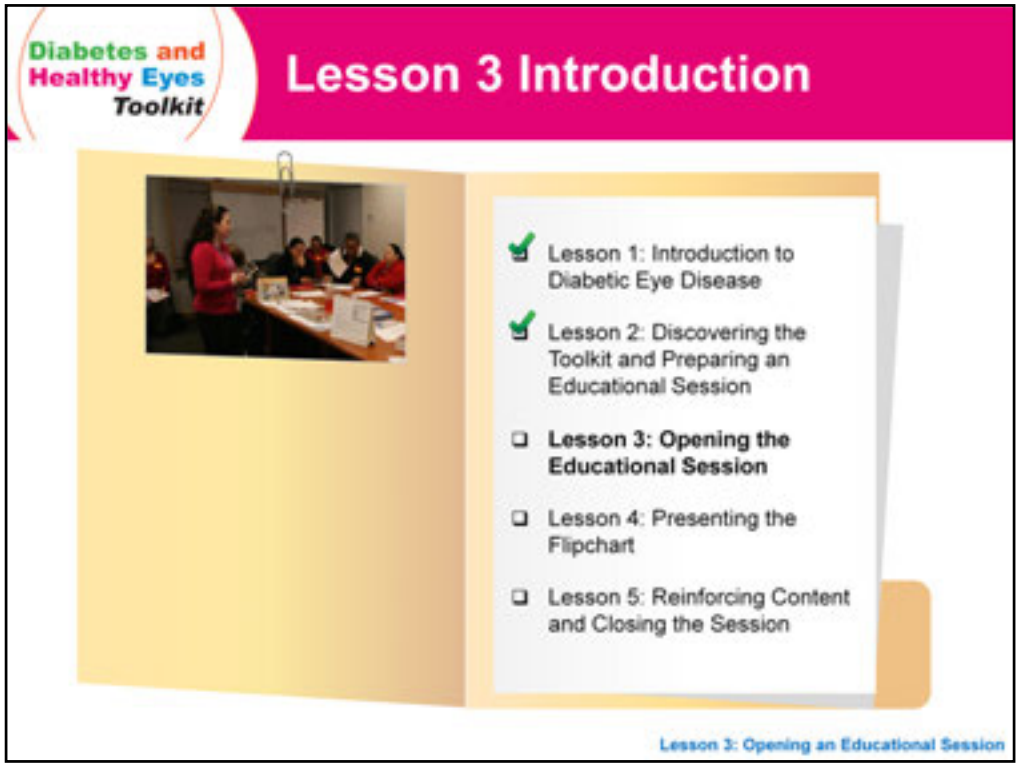
Now let's review how you would present an educational session using the toolkit.

Begin the session by welcoming participants and giving them an overview of what they will learn. Next, administer the pretest so that you learn how much your participants know about diabetes and eye health.

Then, present the flipchart. After that, lead participants through the Q&A activity. Next, help participants develop an action plan that they can follow to help them protect their eye health.

Finally, administer the posttest so that you'll know how much your participants learned.

The educational session is designed to last one-and-a-half hours. However, we understand that sometimes you might not have this much time. Take some time to think about what you want to accomplish and tailor the agenda for your educational session.



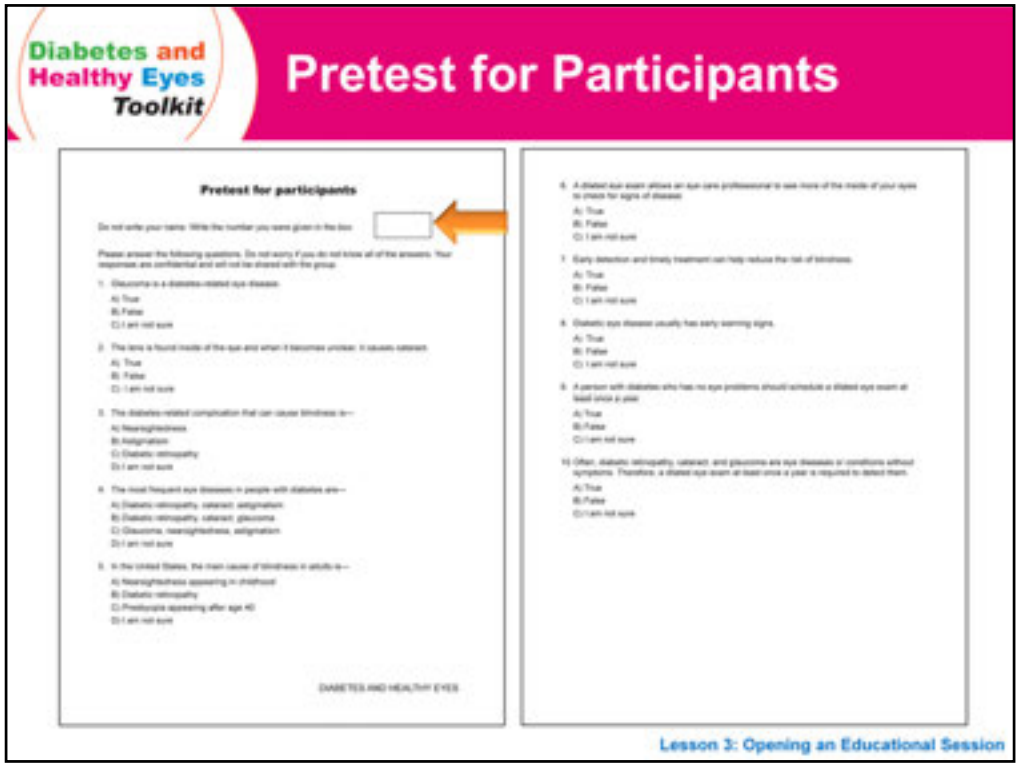
Congratulations! You have completed Lesson 2. In Lessons 3, 4, and 5, we'll discuss each step of the educational session in more detail.

Let's start with Lesson 3: Opening an Educational Session.

Begin your session by introducing yourself, welcoming participants, and giving them an overview of what you will present. To create a friendly atmosphere, ask participants to introduce themselves and answer an icebreaker question. For example, ask them to name one thing they want to learn during the educational session.

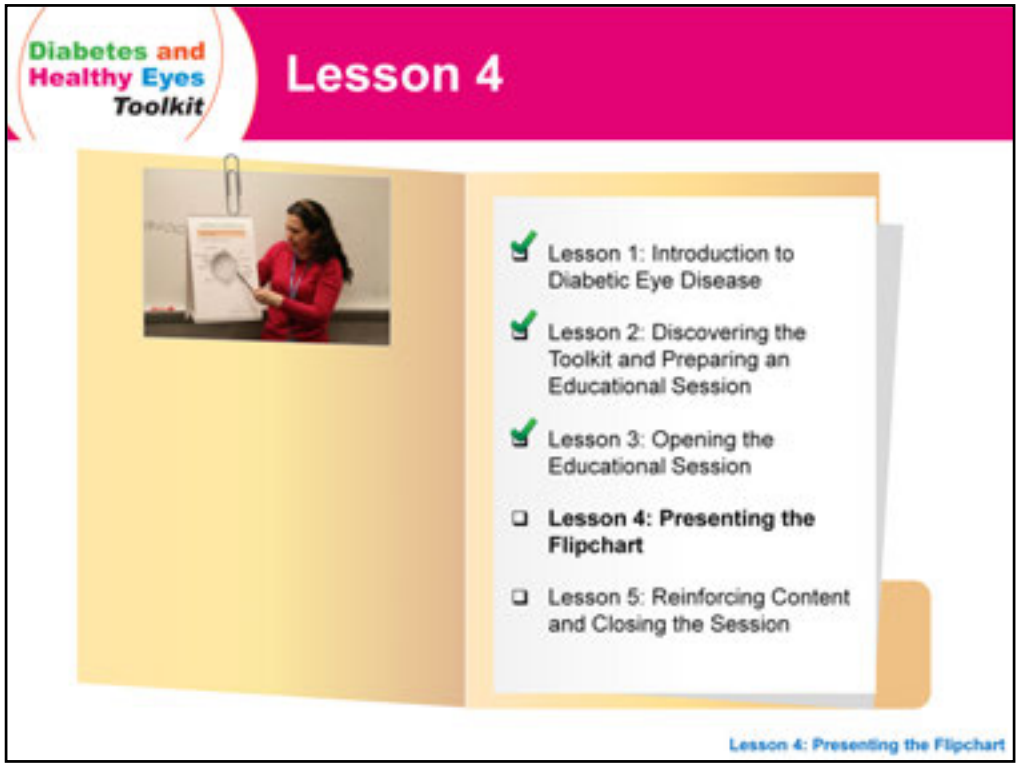
Then, distribute handouts to the participants and give each participant a numbered piece of paper cut out from Appendix F.

Finally, pass around the attendance sheet from Appendix G and ask participants to write down their names.



After everyone has had a chance to introduce themselves, ask participants to complete the pretest. The pretest will tell you how much they already know about diabetes and eye-related complications.

Ask participants to write their number on the pretest. Give them a few minutes to answer the questions on the pretest and collect them when everyone has finished. Remind participants not to write their names on the pretests to help keep the results confidential. Participants should also keep their numbers until the end of the educational session because they will need to use them again for the posttest.



You have now completed Lesson 3. Let's move onto Lesson 4: Presenting the Flipchart.

In this lesson, you will learn—

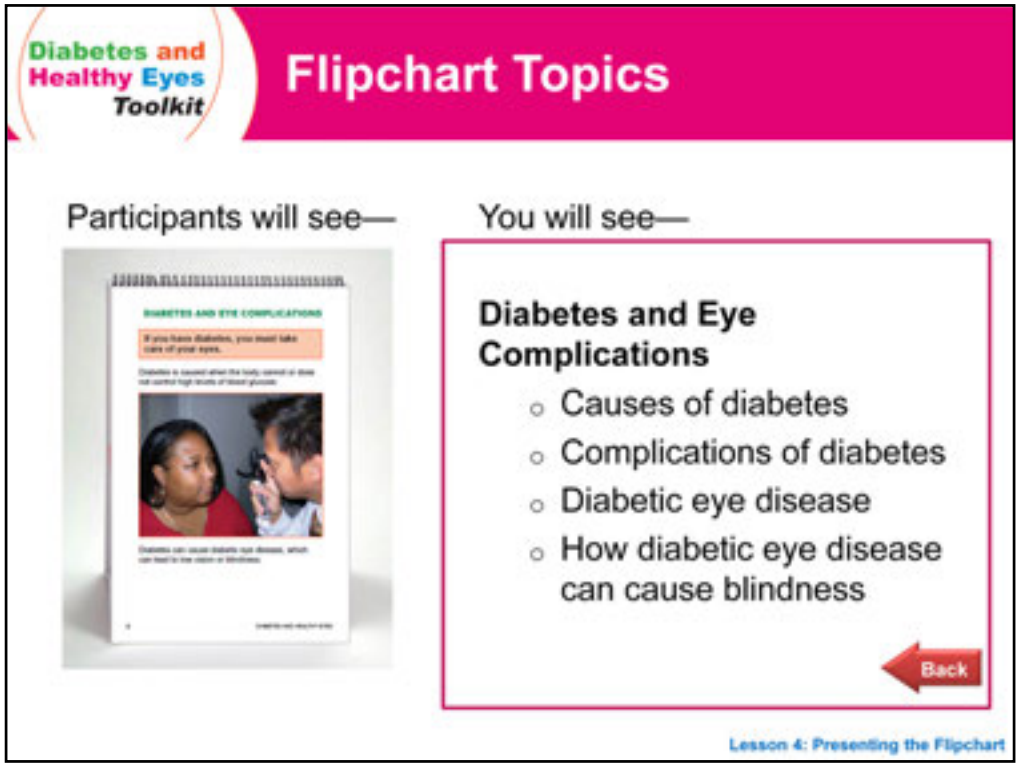
- How to use the flipchart
- The topics covered in the flipchart
- Tips for using the flipchart

The flipchart covers eight topics.

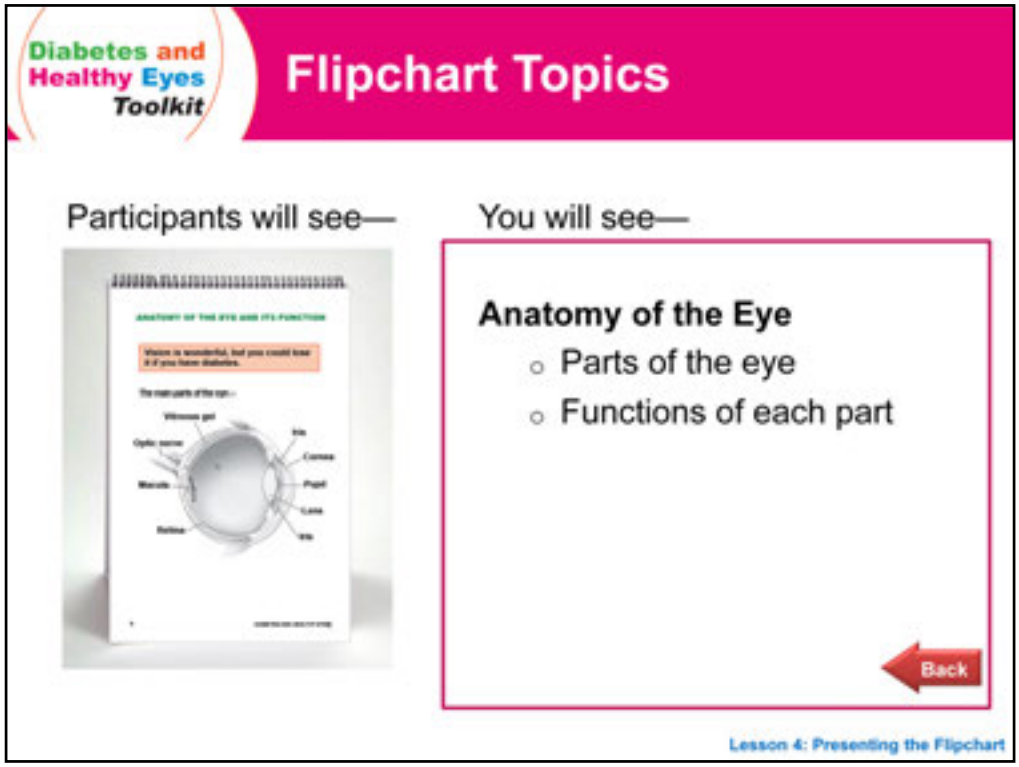
1. Risk Factors for Developing Diabetes
2. Diabetes and Eye Complications
3. Anatomy of the Eye
4. The Comprehensive Dilated Eye Exam
5. Diabetic Retinopathy
6. Diabetes and Cataract
7. Diabetes and Glaucoma
8. The Eye Health Team

Let’s explore the content of the flipchart. Select each topic to learn more.

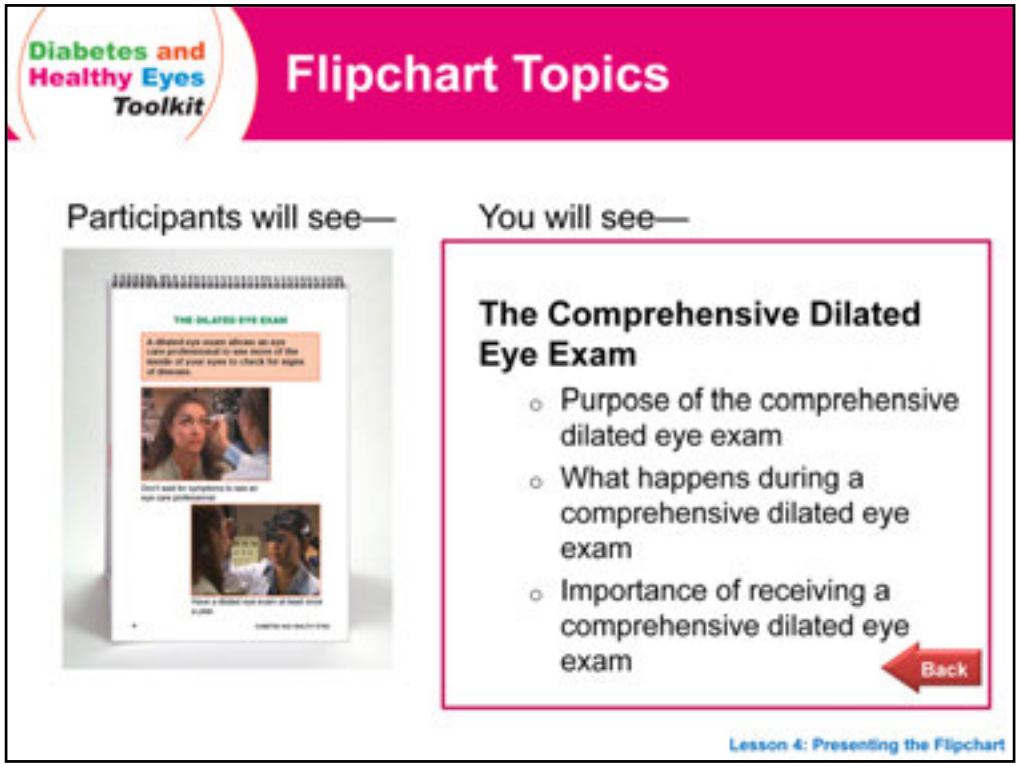
The first topic is Risk Factors for Developing Diabetes. This page will help you explain how family history, high blood pressure, obesity, high cholesterol, and gestational diabetes are all factors that can increase a person's risk of developing diabetes.



The second topic is Diabetes and Eye Complications. This page will help you explain how diabetes can cause serious eye diseases that are leading causes of vision loss and blindness.

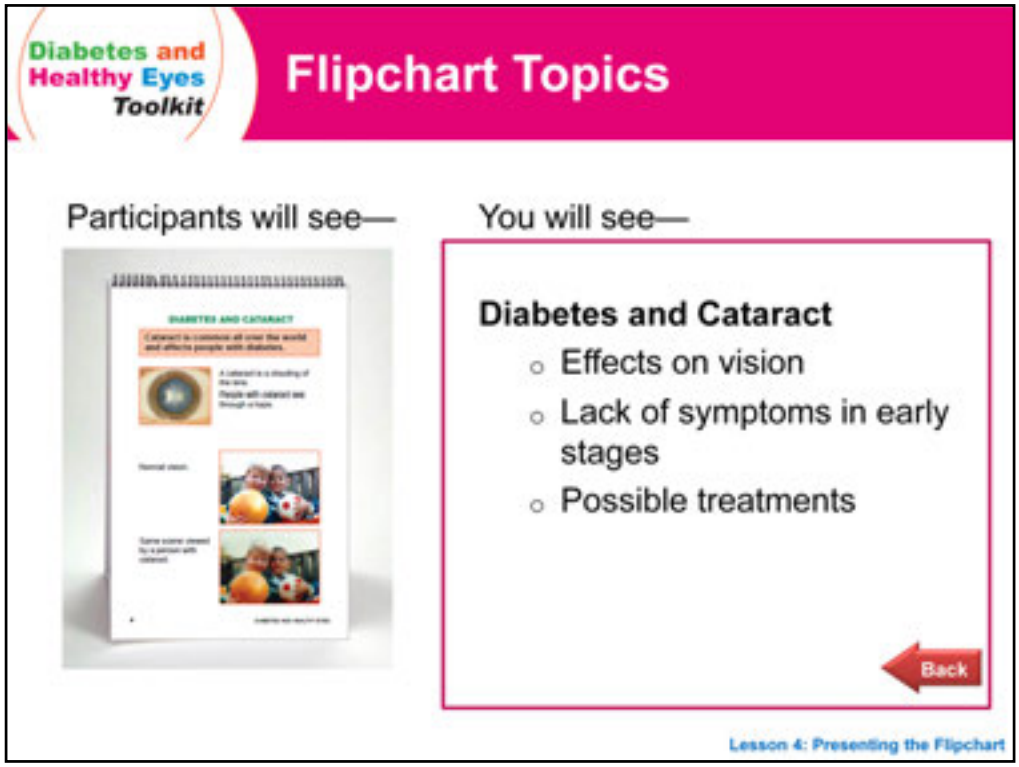


The third topic is Anatomy of the Eye. This page will help you explain the various parts of the eye and their functions.

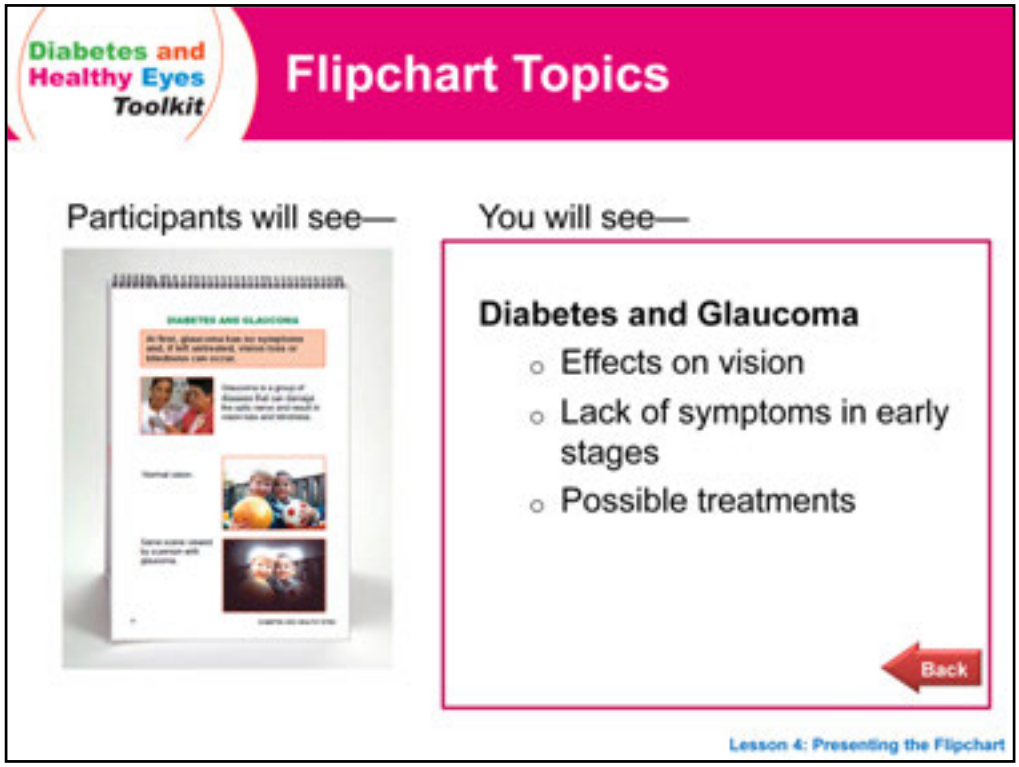


The fourth topic is the Comprehensive Dilated Eye Exam. This page will help you explain what a comprehensive dilated eye exam is, why it is important, and how it helps people with diabetes protect their vision.

The fifth topic is Diabetic Retinopathy. This page will help you explain how diabetic retinopathy affects a person's vision. You will also discuss its lack of symptoms in its early stages and possible treatments.



The sixth topic is Diabetes and Cataract. This page will help you explain how a cataract affects a person's vision. You will also explain its symptoms and possible treatments.



The seventh topic is Diabetes and Glaucoma. This page will help you explain how glaucoma affects a person's vision. You will also discuss its lack of symptoms in the early stages and possible treatments.

The eighth topic is the Eye Health Team. This page will help you tell participants who can help them protect their vision. Be sure to mention that only an ophthalmologist or optometrist can give a comprehensive dilated eye exam.

In order to make the best use of the flipchart, you should—

• Use language that participants can understand.

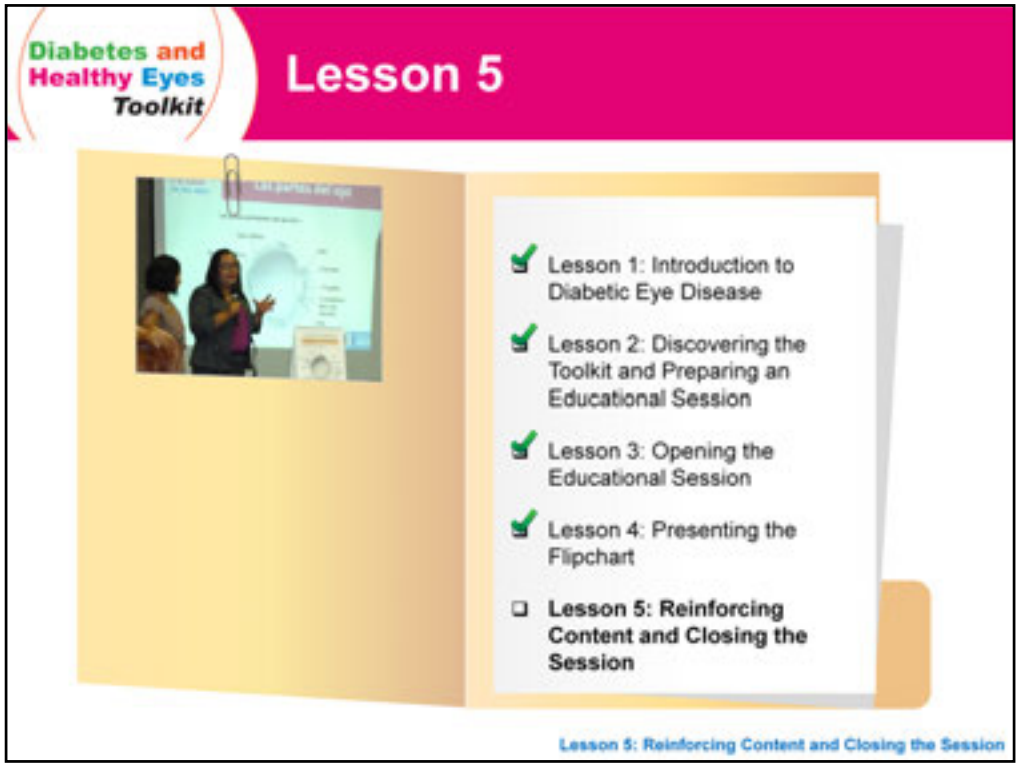
• Avoid reading the text.

• Point to illustrations.

• Think of creative ways to explain difficult concepts, such as using visual aids or sharing personal stories participants can relate to.

• Ask questions to check if participants understand. Encourage participants to ask questions.

The more you use the flipchart, the more familiar you will become with the content!



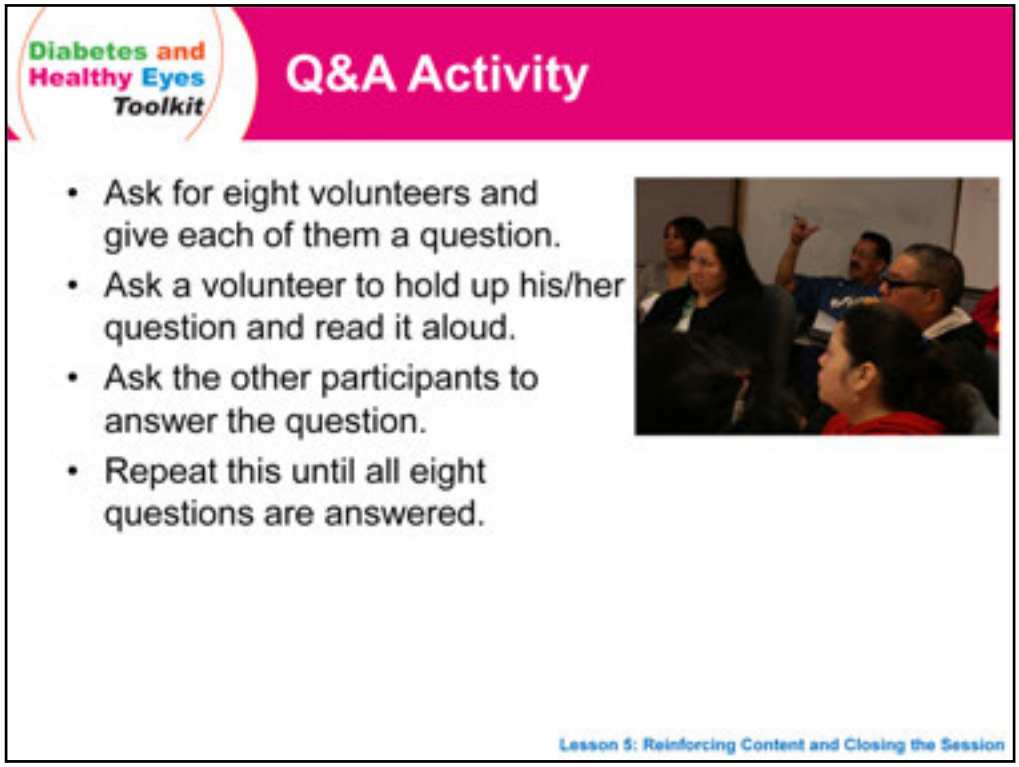
Congratulations! You have completed Lesson 4. Now let's move on to Lesson 5: Reinforcing Content and Closing the Session.

In this lesson, you will learn—

- How to lead the Q&A activity
- How to gain commitment through an action plan
- How to administer the posttest
- How to close the session

After presenting the flipchart, you will move onto the Q&A activity. This activity encourages audience participation and reinforces key information.

In order to lead the Q&A activity, you will need the eight questions from Appendix J – Activity Questions.



For this activity, ask for eight volunteers and hand each one of them a question from Appendix J – Activity Questions. After you have passed out all of the questions, ask each volunteer to read his or her question out loud. Then, ask other participants to answer the question. If participants don't know the answer, or don't answer correctly, use this as an opportunity to review that topic on the flipchart. Repeat this process until all of the questions have been answered.

Question: *What is diabetic eye disease?*

Participants should answer: Diabetic eye disease refers to a group of eye problems that people with diabetes may face as a complication of diabetes. It includes cataract, diabetic retinopathy, and glaucoma.

Question: *I have diabetes. Can I develop glaucoma?*

Participants should answer: Yes, glaucoma is almost twice as likely to occur in people with diabetes than in those without the disease.

Question: *I have diabetes. Can I develop cataract?*

Participants should answer: Yes, people with diabetes are twice as likely to develop cataract and to develop them at an earlier age than are those without diabetes.

Question: *I have just been diagnosed with diabetes, but I don't have vision problems. What should I do?*

Participants should answer: Go to an eye care professional and get a dilated eye exam. The eye care professional will determine when treatment is needed.

Question: *I have diabetes, but I don't have any vision problems. Why should I get an eye exam?*

Participants should answer: You should get an eye exam because there are often no symptoms in the early stages of the disease, nor is there any pain. Early detection and timely treatment can help reduce the risk of blindness.

Question: *What kind of eye exam should I get and how often should I get it?*

Participants should answer: You should get a dilated eye exam at least once a year. Your eye care professional will determine how often you will need a dilated eye exam.

Question: *The doctor says I have diabetic retinopathy. What can I do?*

Participants should answer: Follow the treatment plan prepared by your eye care professional.

To prevent or slow the progression of diabetic retinopathy, people with diabetes should—

- Control glucose levels
- Control blood pressure
- Control cholesterol levels

Question: *Who is on an Eye Health Team?*

Participants should answer: An eye health team can be made up of a certified diabetes educator, health promoter, nurse, eye care professional (ophthalmologist or optometrist), pharmacist, primary care provider, and social worker.

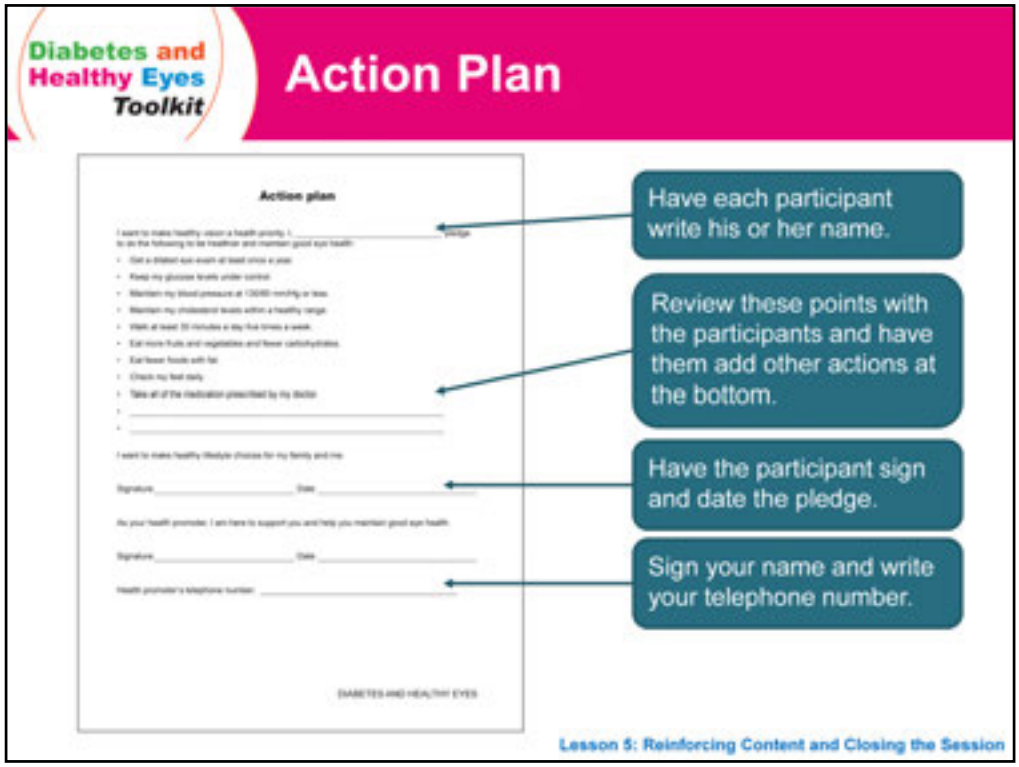
So, now that you have covered all of the information on diabetes and eye health, how do you encourage participants to make a commitment to take care of their vision?

Here are three ways that you can help them take the next step:

1. Provide your participants with a list of eye care professionals in the community. Use Appendix C – Local Eye Health Team Resources – to gather information on local eye health services that are easily accessible, focus on prevention, treatment, and vision rehabilitation; and have experience with patients with cataract, diabetic retinopathy, and glaucoma.

2. Recommend that participants set a timeframe or a special date to remind them that it is time to make an appointment for a comprehensive dilated eye exam. For example, birthdays, around Mother's or Father's day, or every May during Healthy Vision Month.

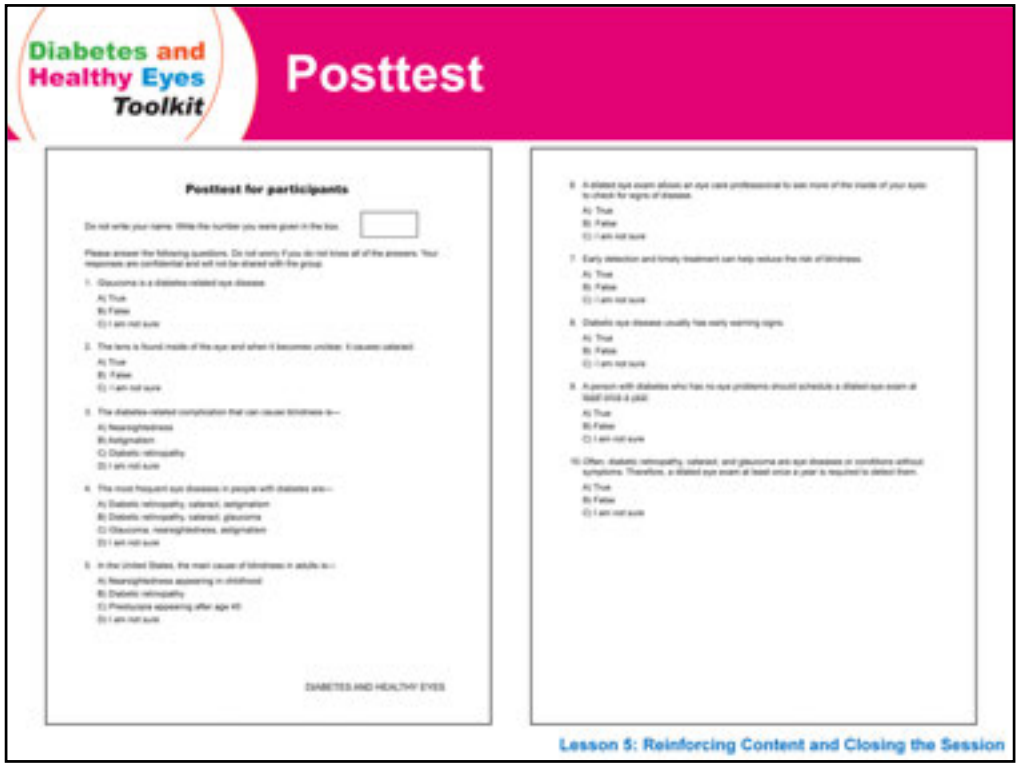
3. Ask participants to develop an action plan. The action plan acts as a promise that participants make to manage their diabetes, protect their sight, and get a comprehensive dilated eye exam once a year. You can find a copy of the action plan in Appendix E or select the Action Plan button on the screen to download a copy.



To fill out the action plan, ask participants to write their names in the space at the top. Then, go over the things that they will do to manage their diabetes and maintain eye health. Finally, have them sign the action plan.

If you feel comfortable, write your phone number on the action plan and sign it as a promise to help participants manage their diabetes and maintain their eye health.

Participants can take the action plan home. They may want to put it somewhere where they can see it.

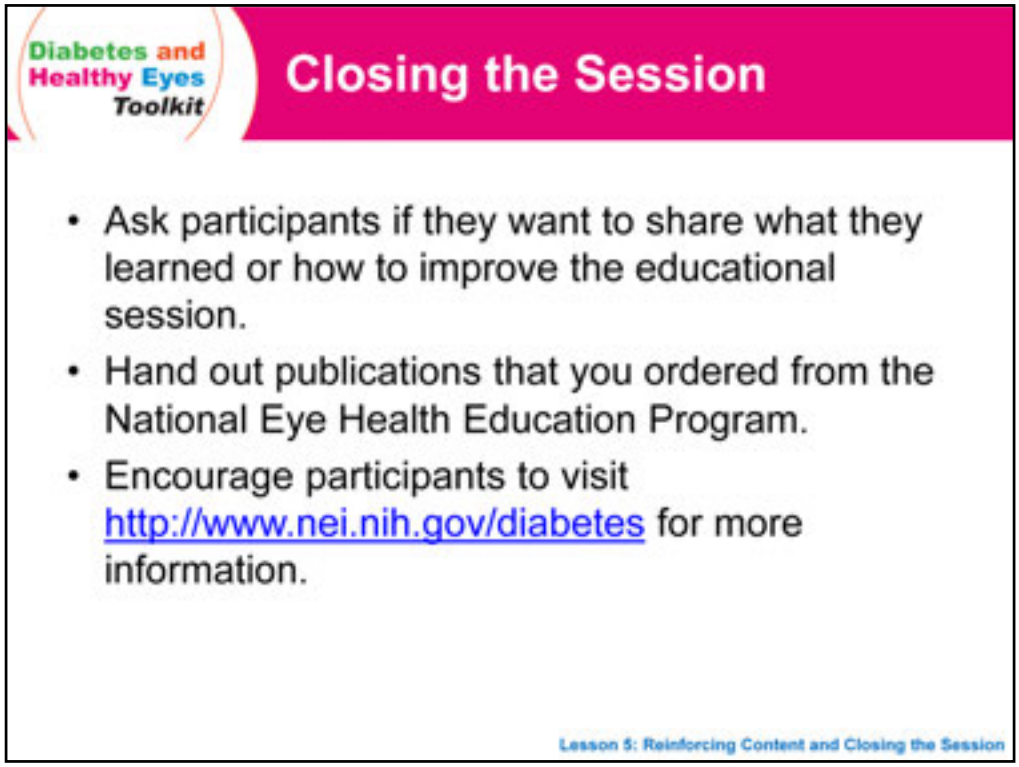


The last step in presenting an educational session is to administer the posttest.

The posttest has the same questions as the pretest. It will tell you how much the participants learned during the session.

Give each participant a posttest and have them write the same number they used for the pretest at the top. After everyone has finished, collect the posttests.

Wait until participants have left to look at the results of the pretest and posttest. To figure out how much the participants learned, you can compare the number of questions they answered correctly on the pretest with the number of questions they answered correctly on the posttest.



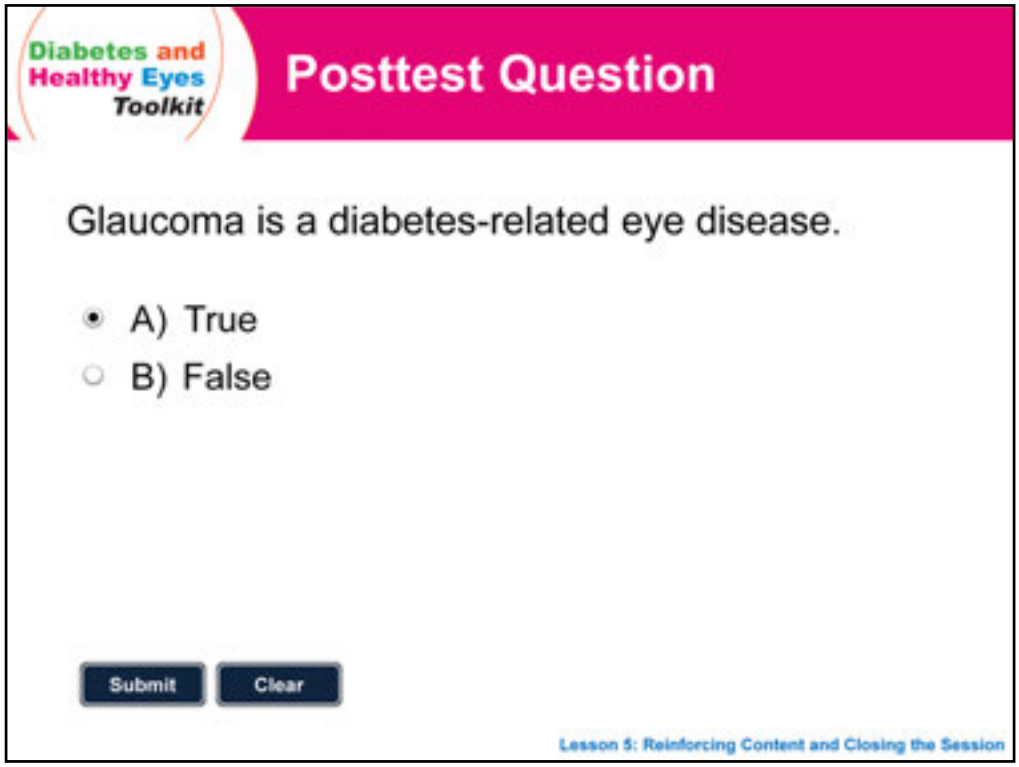
After participants finish answering the posttest, the educational session is over.

Thank everyone for coming and ask if they want to share what they learned. You can also ask them how to improve the educational session.

Don't forget to hand out the publications that you ordered from NEHEP, along with any other handouts, and encourage them to visit http://www.nei.nih.gov/diabetes for more information.

You have now finished Lesson 5.

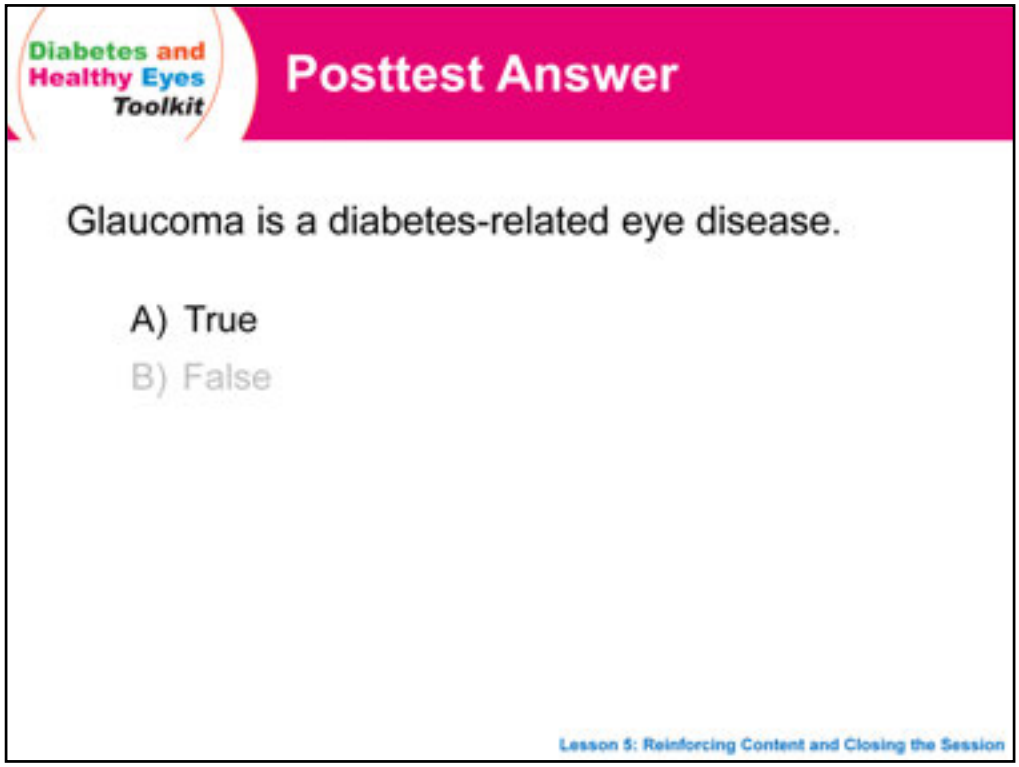
Before we finish this training course, let's see how much you learned. The next screens have questions from the participant posttest. Answer the questions to see what you know about diabetes and eye health.



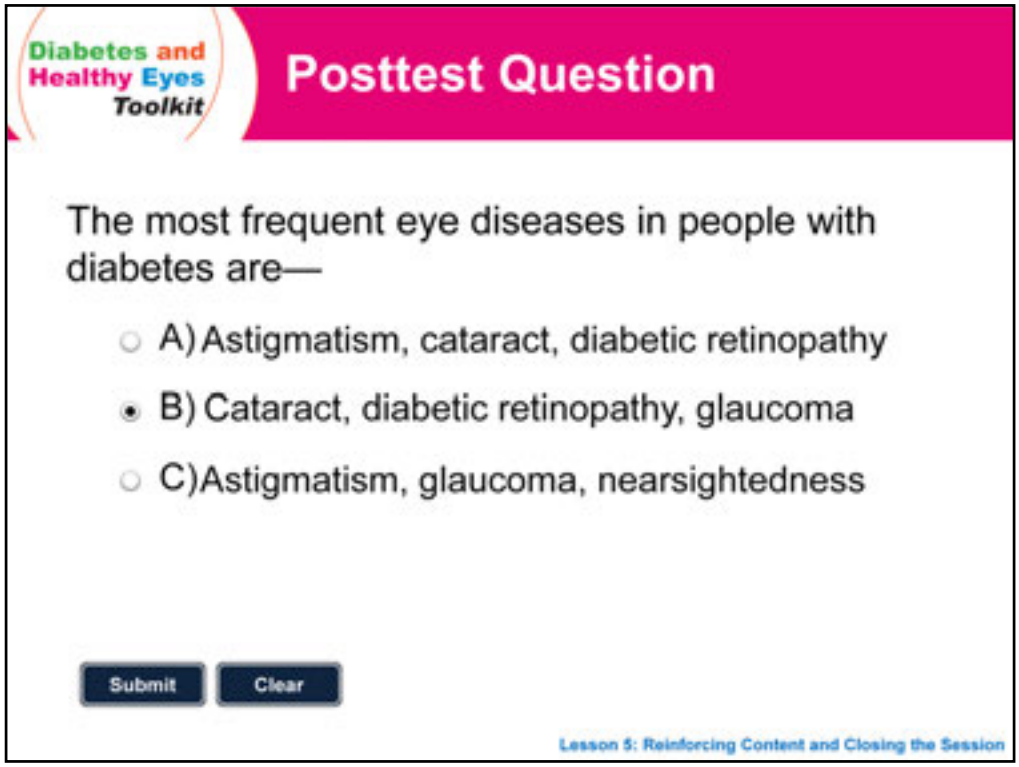
Glaucoma is a diabetes-related eye disease.

A. True

B. False



The correct answer is A. True. Diabetes puts you at a higher risk to develop glaucoma, so glaucoma is a diabetes-related eye disease.

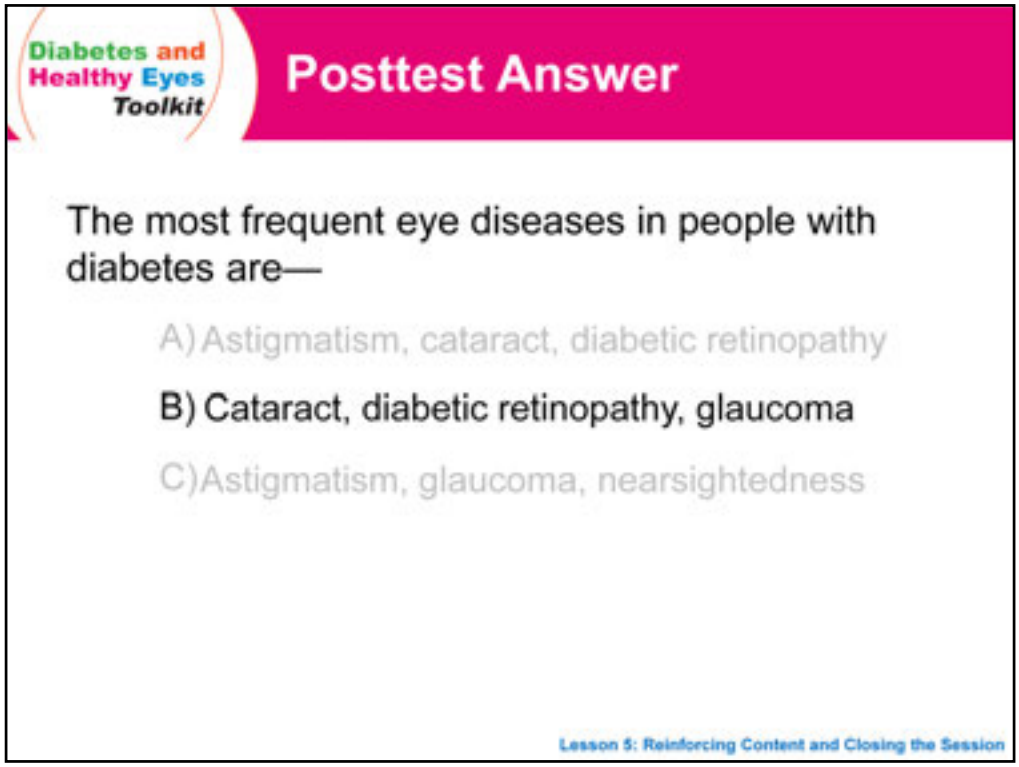


The most frequent eye diseases in people with diabetes are—

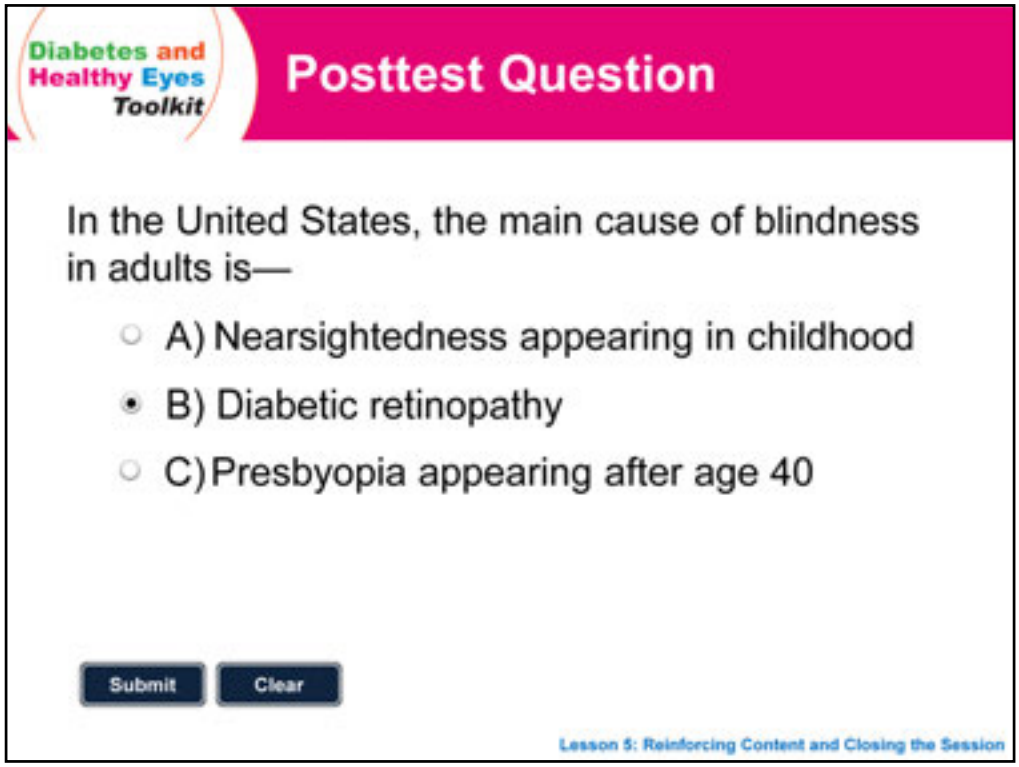
A. Astigmatism, cataract, diabetic retinopathy

B. Cataract, diabetic retinopathy, glaucoma

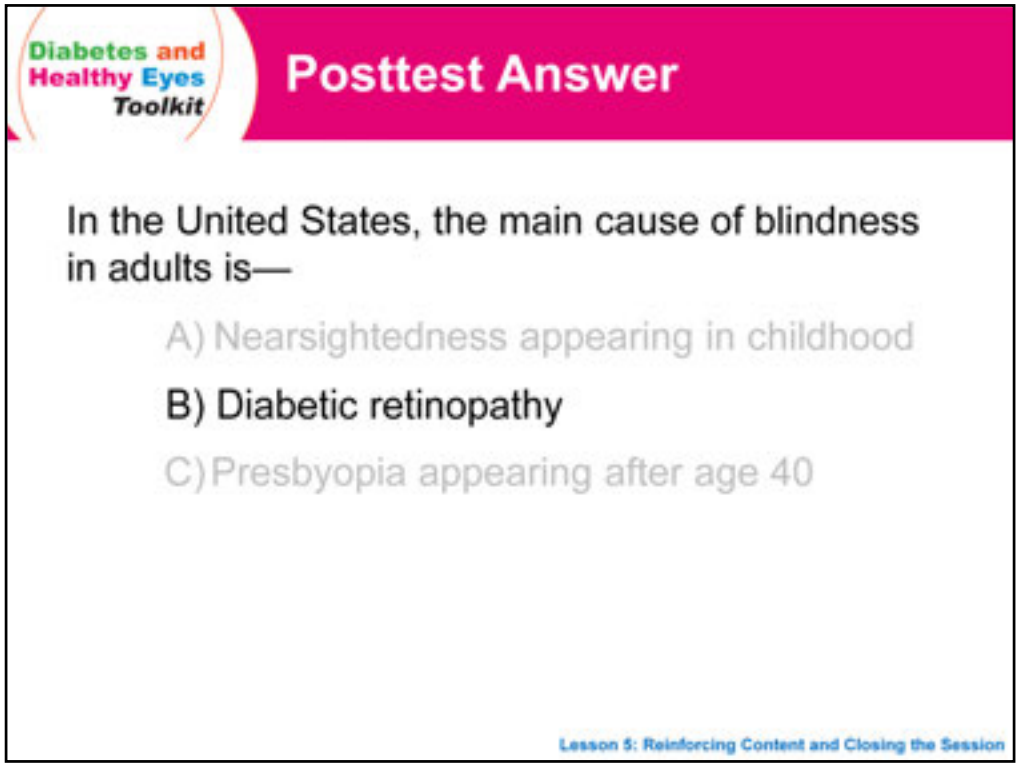
C. Astigmatism, glaucoma, nearsightedness



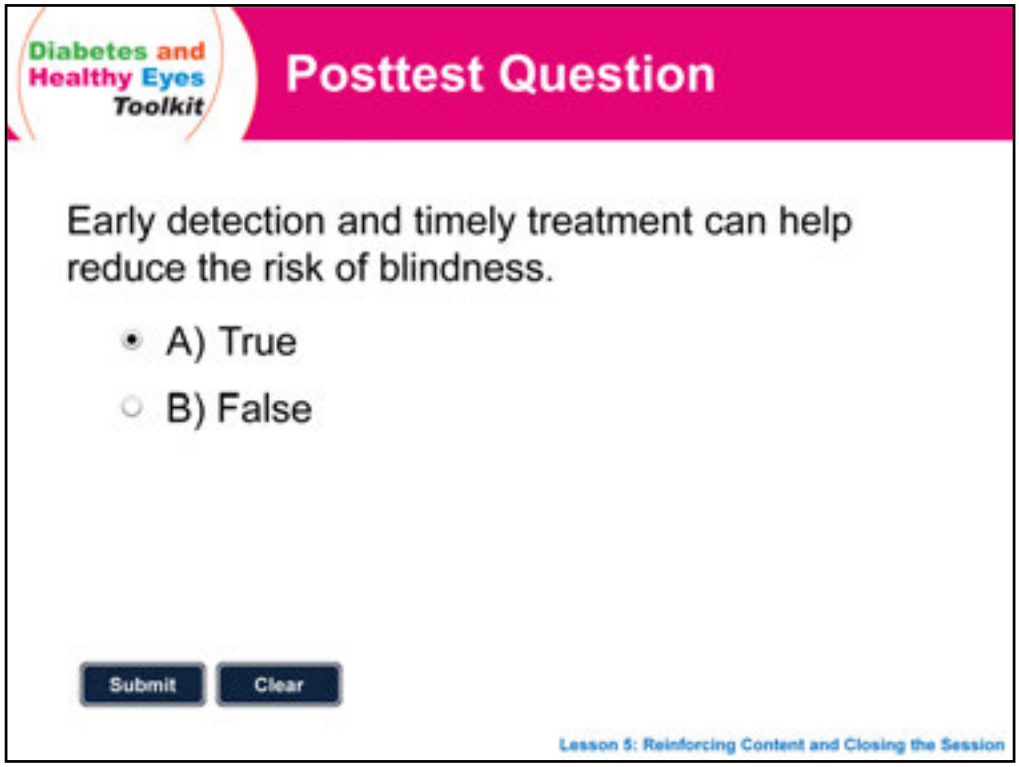
The correct answer is B. Cataract, diabetic retinopathy, glaucoma. These are the most frequent eye diseases in people with diabetes.



In the United States, the main cause of blindness in adults is—
A. Nearsightedness appearing in childhood
B. Diabetic retinopathy
C. Presbyopia appearing after age 40



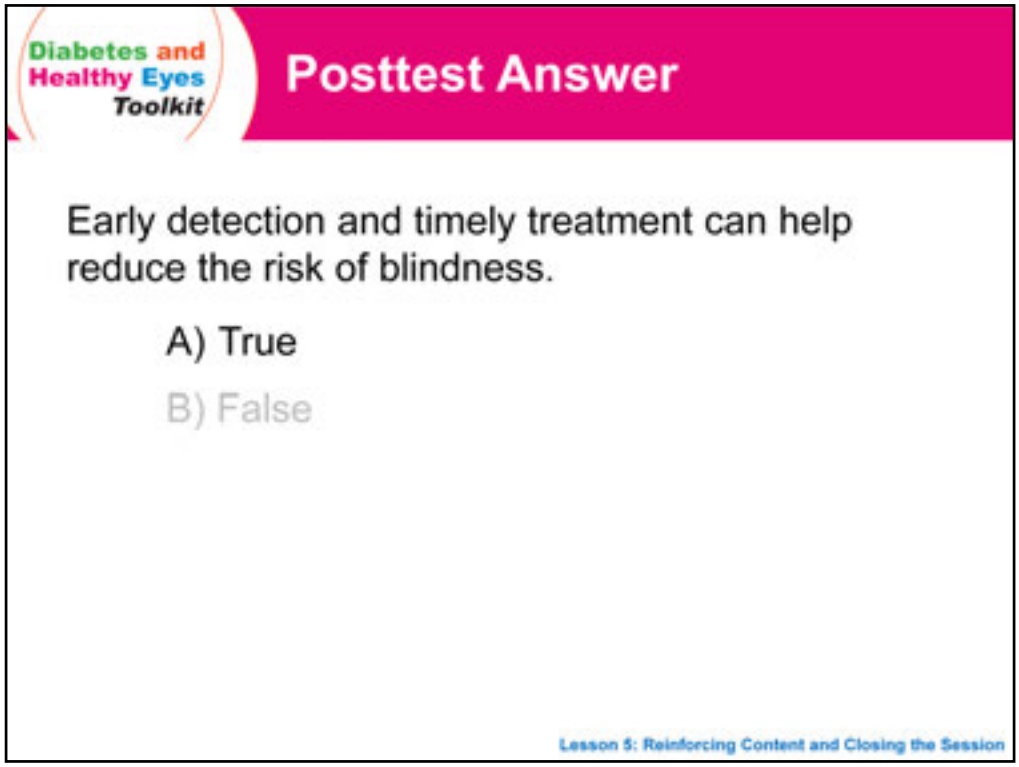
The correct answer is B. Diabetic retinopathy. Diabetic retinopathy is the main cause of blindness in adults in the United States.



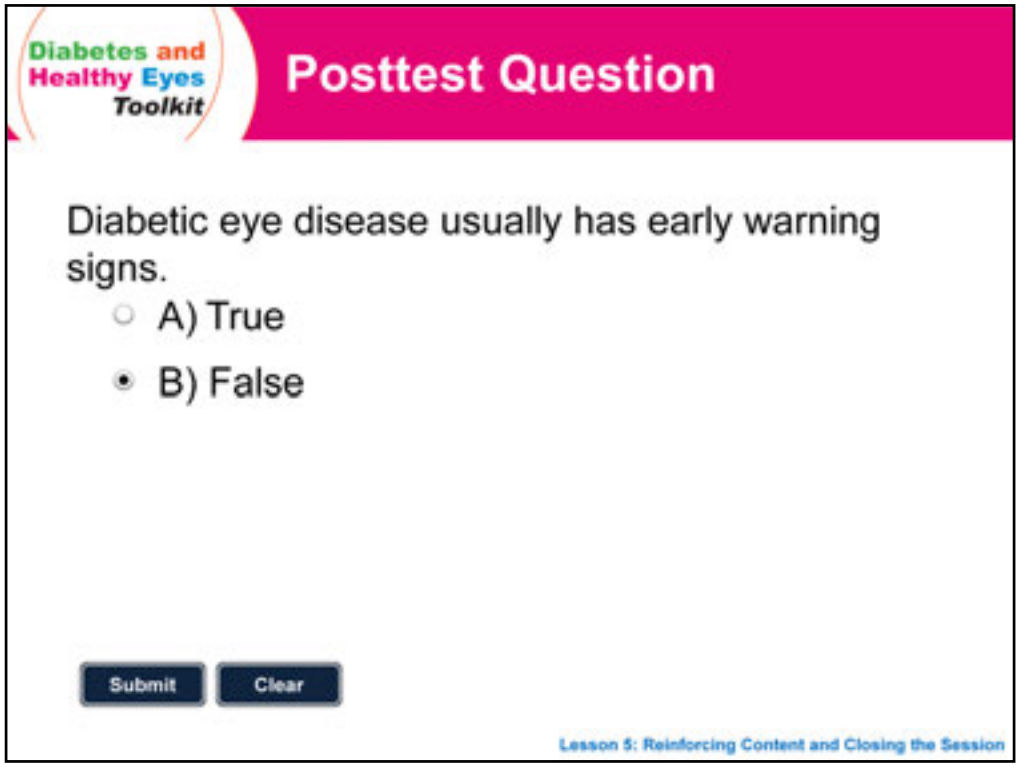
Early detection and timely treatment can help reduce the risk of blindness.

A. True

B. False



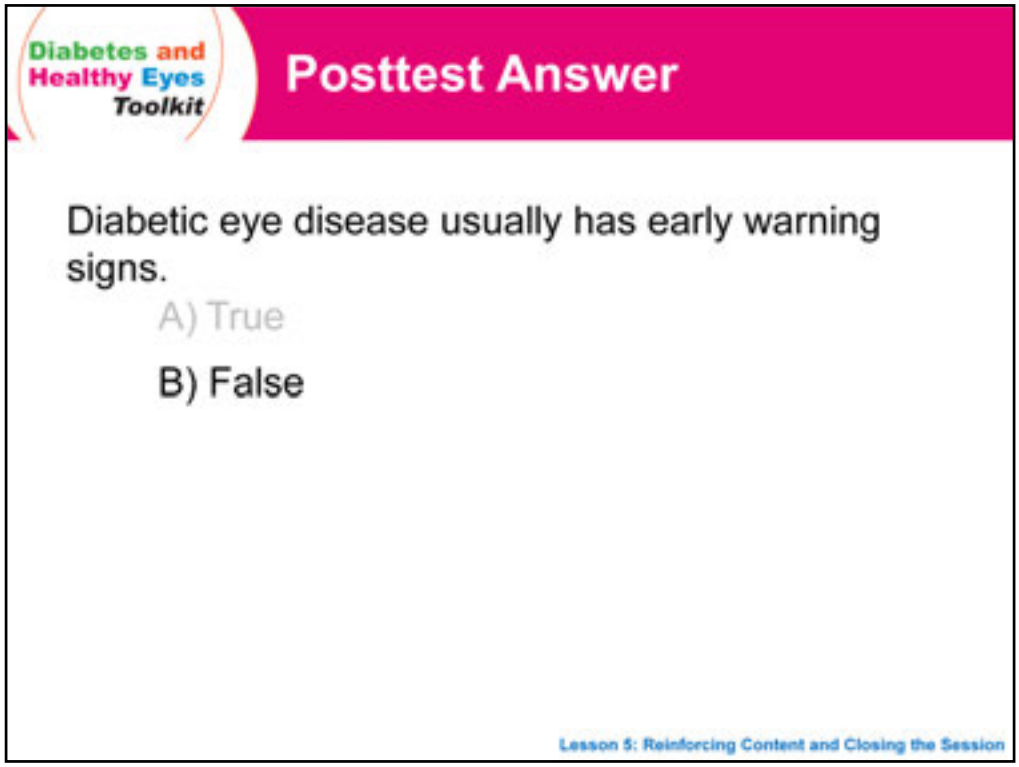
The correct answer is A. True. Early detection and timely treatment can help reduce the risk of blindness.



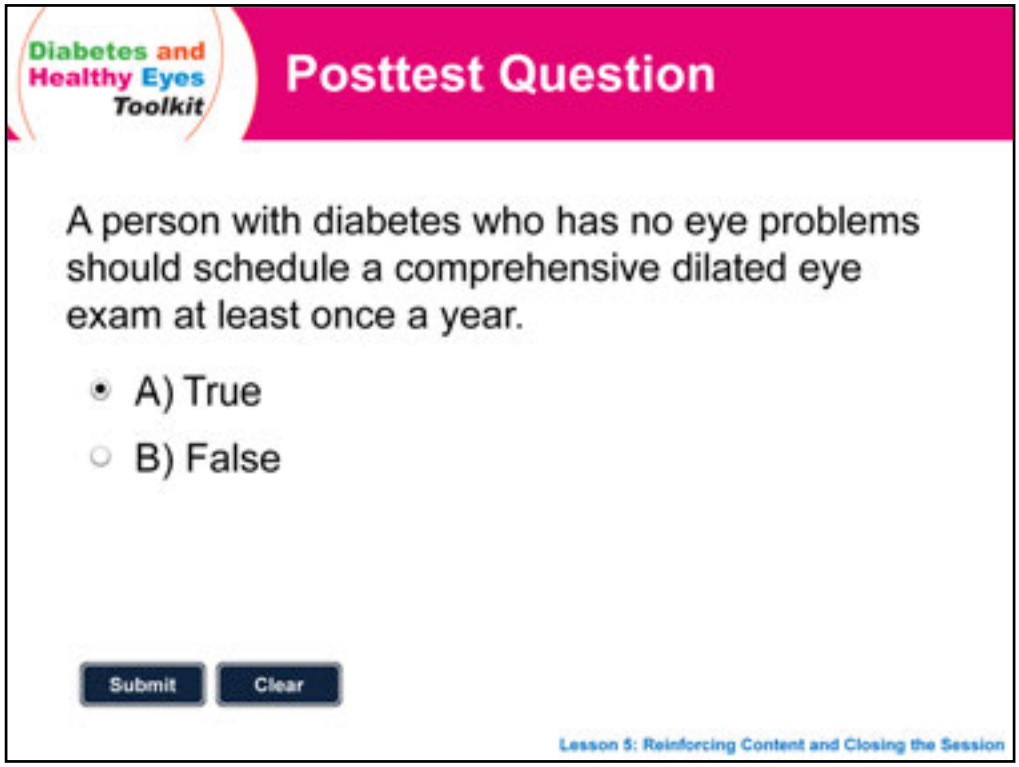
Diabetic eye disease usually has early warning signs.

A. True

B. False



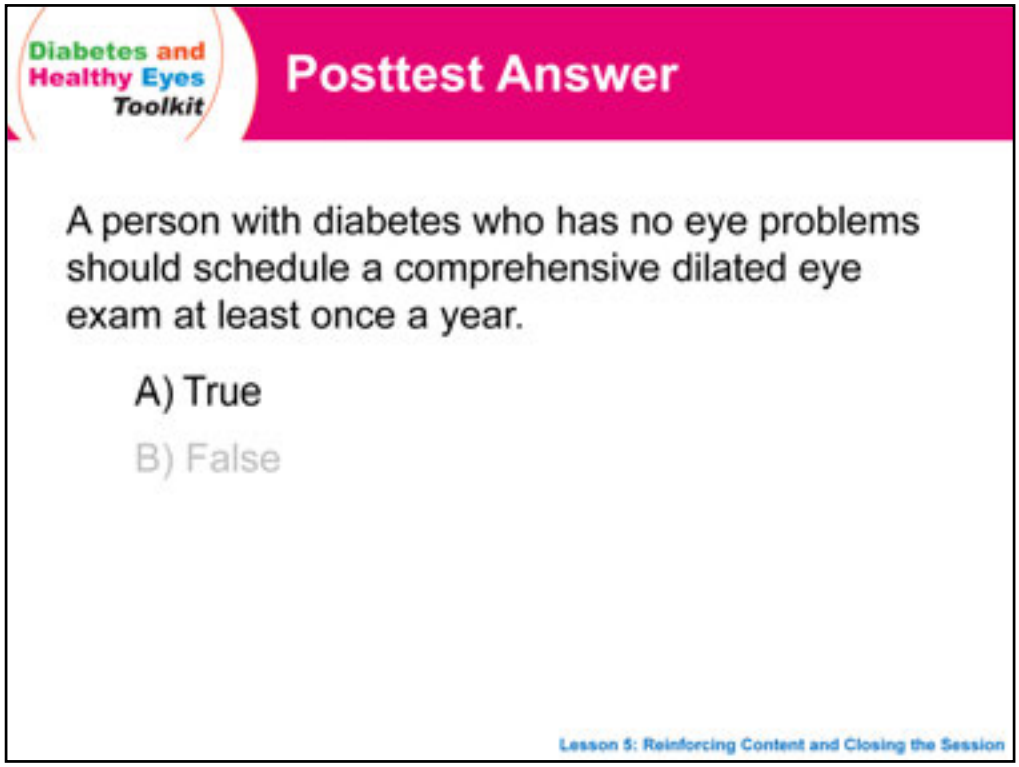
The correct answer is B. False. There are usually no early warning signs or symptoms of diabetic eye disease.



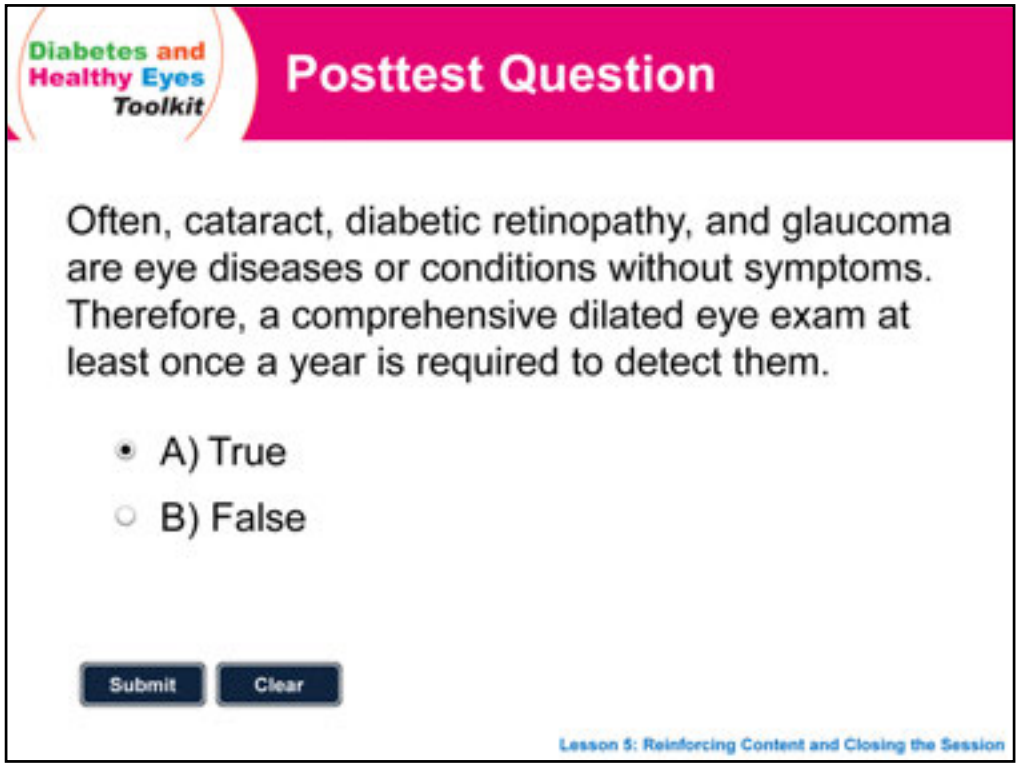
A person with diabetes who has no eye problems should schedule a comprehensive dilated eye exam at least once a year.

A. True

B. False



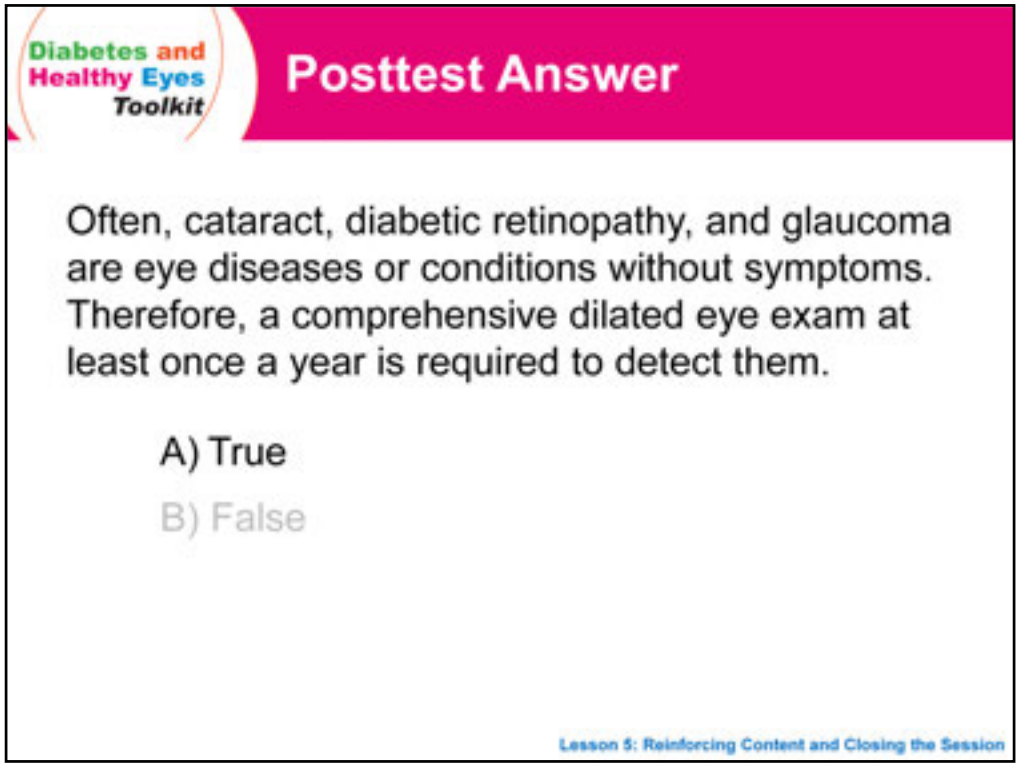
The correct answer is A. True. A person with diabetes should schedule a dilated eye exam at least once a year, even if he or she has no eye problems.



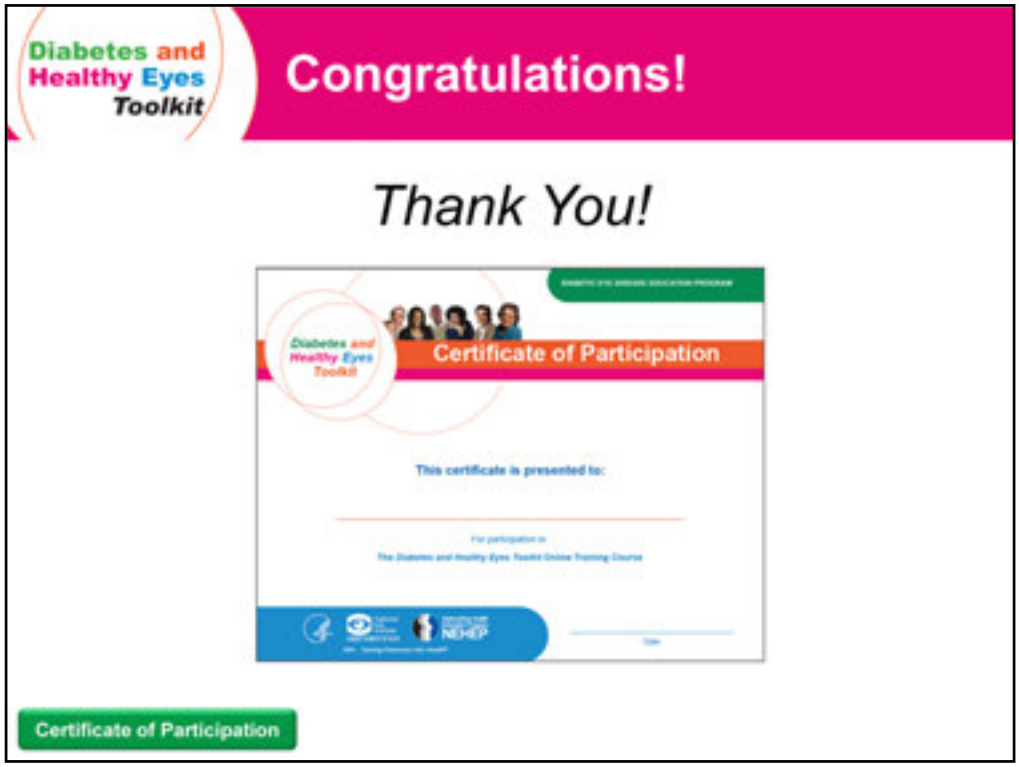
Often, cataract, diabetic retinopathy, and glaucoma are eye diseases or conditions without symptoms. Therefore, a comprehensive dilated eye exam at least once a year is required to detect them.

A. True

B. False



The correct answer is A. True. Because diabetic eye diseases often have no symptoms, a dilated eye exam at least once a year is required to detect them.



Congratulations! You have completed the *Diabetes and Healthy Eyes Toolkit* Online Training course.

This training covered many topics, including—

- Eye complications related to diabetes
- The importance of getting a comprehensive dilated eye exam
- Toolkit contents
- Preparation and facilitation of an educational session
- Presentation of the Q&A activity
- Creation of an action plan
- Administration of the posttest
- Closing the session

You are now ready to use the *Diabetes and Healthy Eyes Toolkit* in your community. You can go back to any part of this training if you would like to review it.

Make sure you download and print your certificate of participation.