



PBS LearningMedia

Investigating the Growing Health Crisis of Diabetes Lesson Plan | Blood Sugar Rising

This three-part lesson utilizes media from the Blood Sugar Rising collection and touches upon the science behind diabetes and the social aspects that contribute to the rapid rise of the disease, particularly in communities of color.

Lesson Summary

This three-part lesson utilizes media from the Blood Sugar Rising collection and touches upon the science behind diabetes and the social aspects that contribute to the rapid rise of the disease, particularly in communities of color. In the first part of the lesson, students grasp the increasing prevalence of type 2 diabetes, the connection between insulin and blood sugar, and what happens when blood sugar regulation goes awry. Next, students dive into case studies to identify health behaviors that increase the risk of type 2 diabetes and are introduced to the social environments that contribute to the risk. Finally, students apply their new understanding of the social aspects of the diabetes epidemic by crafting a plan of action to address food inequity issues and reduce diabetes risk in the community.

Time Allotment

Three 45-minute periods

Learning Objectives

- Students will create a model to contrast how the body responds to sugar from foods in a person who can process blood sugar normally versus a person with diabetes.
- Students will be able to identify health behaviors that increase the risk of type 2 diabetes and the social barriers that hinder access to healthy food options.
- Students will develop a plan of action to address some of the social issues relating to diabetes.

Prep for Teachers

- Preview the media resources, student worksheet, and discussion questions to familiarize yourself with the content and anticipate students' responses.

Supplies

Student Worksheet: Blood Sugar Rising

Media in this Lesson

- Interactive: [Sounding an Alarm on a Growing Epidemic | Blood Sugar Rising](#)
- Video: [What Is Diabetes? | Blood Sugar Rising](#)
- Video: [Portrait: Valarie Blue Bird Jernigan | Blood Sugar Rising](#)
- Video: [Portrait: Gretchen Carvajal | Blood Sugar Rising](#)
- Video: [Portrait: Karen Washington | Blood Sugar Rising](#)

Support Material for Teachers

- Further Information
 - [Major Organizations Providing Information On Diabetes | Blood Sugar Rising](#)

Support Material for Use with Students

- Handouts
 - [Investigating the Growing Health Crisis of Diabetes Handout | Blood Sugar Rising](#)

Learning Activities

Engage (Part I)

Rising Blood Sugar — What’s the Problem?

Students are introduced to the major public health problem of diabetes and learn about the role of insulin in the body and its connection to diabetes. Students create patient education materials to communicate what they have learned about how diabetes works.

1. Reveal to students that today, they will be role-playing as public health and medical experts as they learn about one of the major killers in the country. Have them engage individually in the [Sounding an Alarm on a Growing Epidemic](#) interactive lesson. Then, invite students to volunteer their takeaways.

Students should be able to grasp the severity of the country’s blood sugar problem, particularly in communities of color, and why its rapid rise is a cause for concern for everyone.

2. Segue into the science behind the disease with the [Student Worksheet: Blood Sugar Rising](#). Assign the “Do Now” in Part I to reactivate prior knowledge about how food is used by the body. (Through digestion, carbohydrates are broken down into glucose, which is released into the bloodstream and used by cells for energy. Glucose is the main energy source for cells. Excess glucose is stored in the liver in the form of glycogen.)
3. Next, have students watch the video, [What Is Diabetes? | Blood Sugar Rising](#), to learn more about how insulin regulates blood sugar, and answer the questions in Part IA.

4. Come back as a class and have students summarize what they have learned about diabetes so far, by asking questions such as:
 - How is insulin like a “key” that unlocks the door into cells? What happens when the “key” doesn’t work?
 - Why are diabetes patients not able to get the energy they need from food?
 - Which type of diabetes is linked with a sugary diet?

Additional points of discussion:

- What are some consequences to the body when blood sugar remains too high? Recall Monteil Lee, the diabetes patient in [Sounding an Alarm on a Growing Epidemic](#). (Share with students that Monteil’s toe had to be amputated due to complications from uncontrolled diabetes. When blood sugar is not well controlled, nerve damage or poor blood flow could lead to the loss of sensation in the legs and feet, making infections more likely; furthermore, infections do not heal well, increasing the risk of amputations.)
 - Point out that 90–95 percent of diabetes cases are type 2. However, the number of type 1 diabetes cases has also been rising at a rapid rate. Formerly known as “juvenile diabetes,” type 1 diabetes was once considered a rare disease; now, it is much more common. You may also wish to refer students to the video profile of a person with type 1 diabetes: [Portrait: Nicole | Blood Sugar Rising](#). This video highlights that while type 1 diabetes is less prevalent (5–10 percent of diabetes cases), its effects can be more acute, up to and including sudden death. Good management is crucial, which is often challenging in young children.
5. Challenge students to now assume the role of a doctor. Their task is to clearly communicate to diabetes patients how a healthy body functions to regulate the levels of sugar in the blood, and to contrast that with what happens in a person with diabetes. You may wish to assign this activity (worksheet Part IB) to be completed at home and to leave it open-ended. For example, students may choose to produce a brochure, create a graphic illustrating the differences, or develop a model based on the analogy of insulin as a “key.”

Investigate (Part II)

Type 2 Diabetes as a “Social” Epidemic — The Injustice

The rest of the lesson will focus on type 2 diabetes, which makes up 90–95 percent of diabetes cases and is more closely related to unhealthy lifestyles. In this section, videos within the Blood Sugar Rising collection will introduce students to risk factors for developing type 2 diabetes and stimulate students’ thinking about issues of social inequities that contribute to the diabetes epidemic.

6. Together as a class, watch [Portrait: Valarie Blue Bird Jernigan | Blood Sugar Rising](#) (6:11 min). Discuss some of the key ideas relating to social justice touched upon in the video. (Note: You may choose one of the other video portraits in Step 7 to watch as a

class if you prefer. For possible guiding questions, refer to the Teaching Tips in the Support Materials for those videos.)

Potential points of discussion after viewing Valarie's profile:

- What has historically contributed to such high rates of type 2 diabetes in Native American communities in the United States?
 - What do "commodity foods" contain too much or not enough of? How have such foods harmed the health of Choctaw people?
 - Explain what Valarie means when she refers to diabetes as a "story" that's about:
 - access to food
 - opportunities
 - getting out of poverty
 - Why are these issues of social justice (the general view that everyone deserves equal rights and opportunities within society)?
7. Then, have students watch the following two videos on their own and fill out the table in Part IIA of the worksheet, with their observations from all three video portraits as "case studies."
- [Portrait: Gretchen Carvajal | Blood Sugar Rising \(4:10 min\)](#)
 - [Portrait: Karen Washington | Blood Sugar Rising \(5:58 min\)](#)
8. Come back as a class to discuss the risk factors and social environments that contribute to type 2 diabetes. Potential questions:
- What were some common themes that tie all three case studies together?
 - What are some health behaviors (e.g., diet and physical activity) that increase the risk of type 2 diabetes? Are these risk factors controllable?
 - Point out that people with diabetes often face social stigmas, such as being viewed as bringing the disease upon themselves, "obese," "lazy," or "undisciplined." Emphasize that diabetes is a complex disease, with interacting risk factors whose connections are not always clear-cut. For example, being overweight or obese can be a risk factor for developing diabetes, but people who are thin also get diabetes. Not only are the stereotypes hurtful and inaccurate, they can increase feelings of guilt and shame, which contribute to the challenges of self-management and care.
 - Why might people buy "junk" food and processed foods instead of healthy foods?
 - Why do you think certain communities, such as low-income communities or communities of color, are at a higher risk of developing type 2 diabetes?
 - Suggest some reasons why supermarkets do not tend to build in low-income communities.

Review the following terms/concepts, if necessary:

- **food accessibility**—having access to affordable, healthy food

- **food desert**—an area where people have limited access to affordable and nutritious food; people living in these areas may be more reliant on convenience stores and fast-food restaurants for what they eat
 - **food insecurity**—having limited access to healthy food due to lack of money and other resources
 - **inequity**—unfairness; favoritism or bias
 - **injustice**—a violation of someone’s right to something; *food injustice* refers to conditions that prevent access to healthy, nutritious, and culturally appropriate foods
 - **social norms**—accepted behaviors that an individual is expected to conform to as a member of a particular group, community, or culture
9. Point students to the statistics in Part IIB of the student worksheet. Emphasize that issues related to food accessibility and food insecurity are complex, vary by geography (e.g., differences between urban versus rural areas of the country), and involve many interacting, changing factors; the statistics in the worksheet touch upon only a few aspects of the issues. (Note that the 2019 values do not reflect the impacts of the COVID-19 pandemic in 2020.)

Review the statistics together and elicit students’ general reflections. Potential points of discussion, in addition to the reflection questions on the worksheet, include:

- Why is addressing food injustice important in light of the rapid rise of type 2 diabetes?
- What is the role of education in healthy eating? (Consider why it is not enough to have access to supermarkets but not awareness of healthy versus unhealthy food options.)
- Do you think access to healthy foods is a right or a privilege? Explain your response.

Conclude the lesson by summarizing how diabetes is very much a social epidemic, as students have seen today. Share with students that tomorrow, they will make a plan of action to help be part of the solution and help people stay healthy.

10. Optional: As homework, you may wish to have students preview the resources at the end of the student worksheet. Encourage students to explore the various links within each website to learn more about a diabetes-related topic that they are interested in.

Wrap Up/Conclusion (Part III)

Diabetes Awareness — A Plan of Action

In this final section, students will communicate information to raise awareness of the social inequities surrounding diabetes (particularly food access) and make recommendations to help keep their community healthy.

11. To reactivate learning from the previous day, assign the “Do Now” in Part III of the [worksheet](#). Review those specific solutions with the class: increasing healthy food

options in stores, raising awareness through youth activism, and planting community gardens. Discuss how such actions help address food injustice and help their communities reduce the risk of type 2 diabetes. At the end of the discussion, ask students, “What can *you* do?”

12. Divide students into teams. Challenge each team to think of some things they could do to raise awareness of how food access affects diabetes risk, and how they might help address issues of food injustice in their own or another community. They will ultimately develop their ideas into a community plan of action or an “awareness piece.”

Teams should spend some time exploring the resources listed at the end of the worksheet for more background on diabetes, ideas, and inspiration. (Note that additional resources are listed in [Further Information](#).) Review the criteria listed in [Part IIIA](#) with students, adjusting as necessary based on the time available. Have students note their ideas on the worksheet.

13. In [Part IIIB](#), student teams select one of their ideas to refine further and wrap up the lesson by outlining their plan in detail and/or developing their final piece.

Optional: You may wish to plan additional time for teams to present their awareness pieces or community plans as part of a “social justice day.”

Reprinted from *PBS LearningMedia: Investigating the Growing Health Crisis of Diabetes Lesson Plan | Blood Sugar Rising*

<https://www.pbslearningmedia.org/resource/bsr20-health-diabetescrisis-lp/investigating-the-growing-health-crisis-of-diabetes-lesson-plan-blood-sugar-rising/>

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