HIV Infection and AIDS: Get the Facts

2011 Science Ambassador Workshop

Lesson Plan

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HIV Infection and AIDS: Get the Facts

Summary

This lesson plan is designed for middle school biology or life science classes and introduces human immunodeficiency virus (HIV) infection and (acquired immune deficiency syndrome (AIDS) as a public health problem, including its modes of transmission, treatment, and prevention. Students should have covered lessons in human anatomy and physiology — specifically, organ systems, blood circulation, and immunity as a prerequisite for this lesson. Material in this plan can also be used to supplement teaching of such human biology topics.

Learning Outcomes

After completing this lesson, students will be able to

- differentiate between viruses and bacteria;
- distinguish between HIV infection and AIDS;
- explain how HIV is and is not transmitted; and
- explain how HIV infection and AIDS can be detected, treated, and prevented.

Materials

1. Projector
2. Internet access
3. Microsoft® PowerPoint® software
4. Whiteboard, chalkboard, or smartboard
5. PowerPoint presentation
6. Appendix 1. Myth, Fact, and Don't Know Signs
7. Appendix 2. Myth versus Fact Statements
8. Appendix 3A. HIV Infection and AIDS Basics: Get the Facts Handout
9. Appendix 3B. Answer Key HIV Infection and AIDS Basics: Get the Facts
10. Appendix 4A. Case Study Scenarios — What Would You Say?
11. Appendix 4B. Answer Key Case Study Scenarios — What Would You Say?
12. Appendix 5. Reflection Journal Questions

Total Duration 2 hours, 30 minutes

Procedures

Day 1

Preparation

You should become familiar with content in the PowerPoint® (Microsoft Corporation, Redmond, Washington) presentation and materials in each appendix. Because this introductory lesson focuses on the basic facts about HIV infection and AIDS and might contain sensitive information, prior school administration approval and parent notification might be required before teaching this material.

Step 1. Introduction: Myth versus Fact Activity — Duration: 30 minutes

Preparation

- Print the three classroom signs in Appendix 1: Myth, Fact, and Don't Know.
- Become familiar with and make 1 copy of Appendix 2. Myth versus Fact Statements.
- Draw the tally chart below on your classroom whiteboard, chalkboard, or smartboard.

Myth	Fact	Don't Know
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Materials

1. Myth, Fact, and Don't Know Signs (Appendix 1).
2. Myth versus Fact Statements Answer Key (Appendix 2).

Resources

- Title: Basic Information About HIV Infection and AIDS
  URL: http://www.cdc.gov/hiv/topics/basic/index.htm.
  Description: This Centers for Disease Control and Prevention (CDC) website provides general information about the definition, transmission, and prevention of HIV and AIDS.

Activity

Explain that myths are commonly believed statements that are not true and that facts are statements that have been proven, and will you provide an example of each. An example of a myth is, “people can get warts from touching a frog.” An example of a fact is, “the earth is round.”

Divide the classroom into 3 spaces and label each of the spaces with 1 of the following signs: Myth, Fact, or Don’t Know. Request a student volunteer to serve as the recorder to keep a tally of students’ responses on the chart prepared before class. Then read aloud the 10 statements from Appendix 2. Myth versus Fact Statements, keeping answers for later. As you read each statement, ask each student to decide which answer they identify with the most (myth, fact, or don’t know), and move to the part of the classroom that corresponds to their belief. For each statement, the recorder will count the number of students for each response category and record the data on the chart.

After all responses are tallied for all 10 statements, give correct answers as listed in Appendix 1. Use tally results in the data chart on the board to discuss student responses and address any misconceptions.

Step 2. HIV Infection and AIDS Facts — Duration: 60 minutes

Preparation

- Review the HIV Infection and AIDS Basics: Get the Facts PowerPoint Presentation.
- Make 1 copy of HIV Infection and AIDS Basics: Get the Facts Handout (Appendix 3A) for each student.

Materials

1. HIV Infection and AIDS Basics: Get the Facts PowerPoint Presentation.
2. HIV Infection and AIDS Basics: Get the Facts (Appendix 3A).
3. HIV Infection and AIDS Basics: Get the Facts Answer Key (Appendix 3B).

Resources

- Title: Sexual Risk Behaviors: HIV, STD, & Teen Pregnancy Prevention Statistics
  URL: http://www.cdc.gov/HealthyYouth/sexualbehaviors/index.htm.
  Description: This CDC webpage provides a brief overview of HIV, STDs, and teen pregnancy statistics that targets youth audiences.

- Title: Basic Statistics on HIV Infection and AIDS
  URL: http://www.cdc.gov/hiv/topics/surveillance/basic.htm#hivaidsage.
  Description: This CDC webpage provides basic statistics for HIV infection and AIDS diagnoses, as well as several statistics categorized by different demographics.

- Title: Brochure: Cold or Flu. Antibiotics Don’t Work for You
  URL: http://www.cdc.gov/getsmart/campaign-materials/print-materials/Brochure-

general.html.
Description: This CDC Get Smart campaign brochure explains the difference between bacteria and viruses and offers additional links for further information.

Activity

Begin the activity with a short presentation on HIV infection and AIDS and will hand out a copy of the HIV Infection and AIDS Basics: Get the Facts Handout (Appendix 3A) to each student. Ask the students to complete the handout as they listen to the presentation.

Your presentation will cover key talking points for each slide and address any misconceptions identified during the introductory myth versus fact activity. Students should be given time during and after the presentation to complete their handouts. After handouts have been completed, review the HIV Infection and AIDS Basics: Get the Facts handout with the entire class to present correct answers and discuss any misconceptions or mistakes.

Day 2

Step 3. What Would You Say? Duration: 30 minutes

Preparation

1. Make copies of Case Study Scenarios — What Would You Say? (Appendix 4).
2. You can cut copies into strips so that each strip has a single case study scenario.
3. To facilitate discussion, also develop a PowerPoint presentation with each scenario on a separate slide.

Materials

Case Study Scenarios — What Would You Say? (Appendix 4).

Activity

Divide students into groups of 3–4 students and distribute scenarios. Give each group 3 minutes to read and discuss the scenario. After each scenario period, allot 2 minutes for groups to share their responses with the class. Throughout the activity, refer to the Step 1 Tally Chart to show how student's initial thoughts might have changed since the beginning of the lesson.

Step 4. Ryan White's Story Duration: 60 minutes

Preparation

1. Become familiar with and prepare to show the Ryan White: Battle with AIDS video.
2. Print 1 copy per student of the Reflection Journal Questions (Appendix 5).

Materials

1. Overhead projector and Internet access.

2. Reflection Journal Questions (Appendix 5).

Resources

- Title: Ryan White: Battle with AIDS video
  URL: http://www.youtube.com/watch?v=t6YOlJHjcXw.
  Description: This YouTube video shows how the life of Ryan White, a 13-year-old with AIDS, helped to shape the world's view on HIV and AIDS.

- Title: Who Was Ryan White?
  URL: http://hab.hrsa.gov/abouthab/ryanwhite.html.
  Description: This website gives an overview of Ryan White's story, including his diagnosis of AIDS at age 13 and the stigma surrounding HIV and AIDS and what he faced, as told by his mother, Jeanne White Ginder.

Activity

Students will watch a brief Ryan White video clip. Encourage students to pay close attention to the public's response to Ryan White's story. Ask students a series of questions to facilitate a discussion of student thoughts about the Ryan White video. The following questions serve as a guide for a 5-minute class discussion:

- How did you feel while watching this video?
- How would you describe Ryan White in 1 sentence?
- What were some of the myths that were mentioned in the video?

After the class discussion, give students the opportunity to write a reflection journal about the information they learned. Give students copies of the Reflection Journal Questions handout (Appendix 5) to assist in organizing their thoughts. Use the journals to assess concepts that need to be reinforced.

Modifications and Extensions

Modification 1. Advanced Debate on HIV Infection and AIDS

You can present advanced students (gifted, talented, or honors) with different scenarios and have them debate their opinions by using factual information and appropriate language.

Modification 2. HIV Infection and AIDS Role Play

You can provide advanced students with different scenarios and allow students to act out their response to each situation, then summarize what they have learned from the experience.

Extension 1. HIV Infection and AIDS Scavenger Hunt

Resources

- Title: CDC AIDS/HIV Infection Website
  URL: http://www.cdc.gov/hiv/
  Description: This official CDC website is a public health communication channel that provides credible and reliable health and safety information. The CDC HIV and AIDS

website and its fact sheets and resources section can serve as the resource for students to find the answers to specific questions that either they ask for themselves or that you create about specific topics, such as where HIV came from, how HIV tests work, and HIV prevalence among different populations. An HIV Infection and AIDS Scavenger Hunt worksheet can also be created to seek specific information, such as these topics or others not covered during this lesson.

Science Education Standards

National Science Education Standards

Life Science, Content Standard C

As a result of their activities in grades 5–8, all students should develop an understanding of the following:

- regulation and behavior, and
- diversity and adaption of organisms.

Science In Personal And Social Perspectives, Content Standard F

As a result of their activities in grades 5-8, all students should develop understanding of the following:

- personal health; and
- risks and benefits.

Georgia State Education Standards — Science 7th Grade

S7L1. A. Students will investigate the diversity of living organisms and how they can be compared scientifically.

B. Classify organisms on the basis of physical characteristics by using a dichotomous key of the 6 kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals).

S7L2 Students will describe the structure and function of cells, tissues, organs, and organ systems. (e.g., explain the purpose and functions of the major organ systems in the human body, including digestion, respiration, reproduction, circulation, excretion, movement, control, and coordination, and for protection from disease).

National Health Education Standards (Select those that are applicable to objectives or activities.)

The National Health Education Standards (NHES) are the framework for health instruction in schools. The NHES were designed to support schools in meeting the essential goal of enabling students to acquire the knowledge and skills needed to promote personal, family, and community health. The 8 standard statements enable education professionals to align health education curriculum, instruction and assessment practices.

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

Standard 2: Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.

Standard 3: Students will demonstrate the ability to access valid information and products and services to enhance health.

Standard 7: Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.

Appendices

Appendix 1
Myth versus Fact Signs

Myth

Fact

Don’t Know

Appendix 2
Myth versus Fact Statements

1. **There is a cure for AIDS. Myth**

2. **You can get HIV from toilet seats. Myth**

3. **Mothers infected with HIV can transmit the virus to their babies at birth or by breastfeeding. Fact**

4. **Only certain types or races of people get AIDS. Myth**

5. **You can get HIV by holding hands with someone with HIV infection. Myth**

6. **Medications are available for persons who have HIV infection. Fact**

7. **You can get HIV from sharing a drink with someone with HIV infection. Myth**

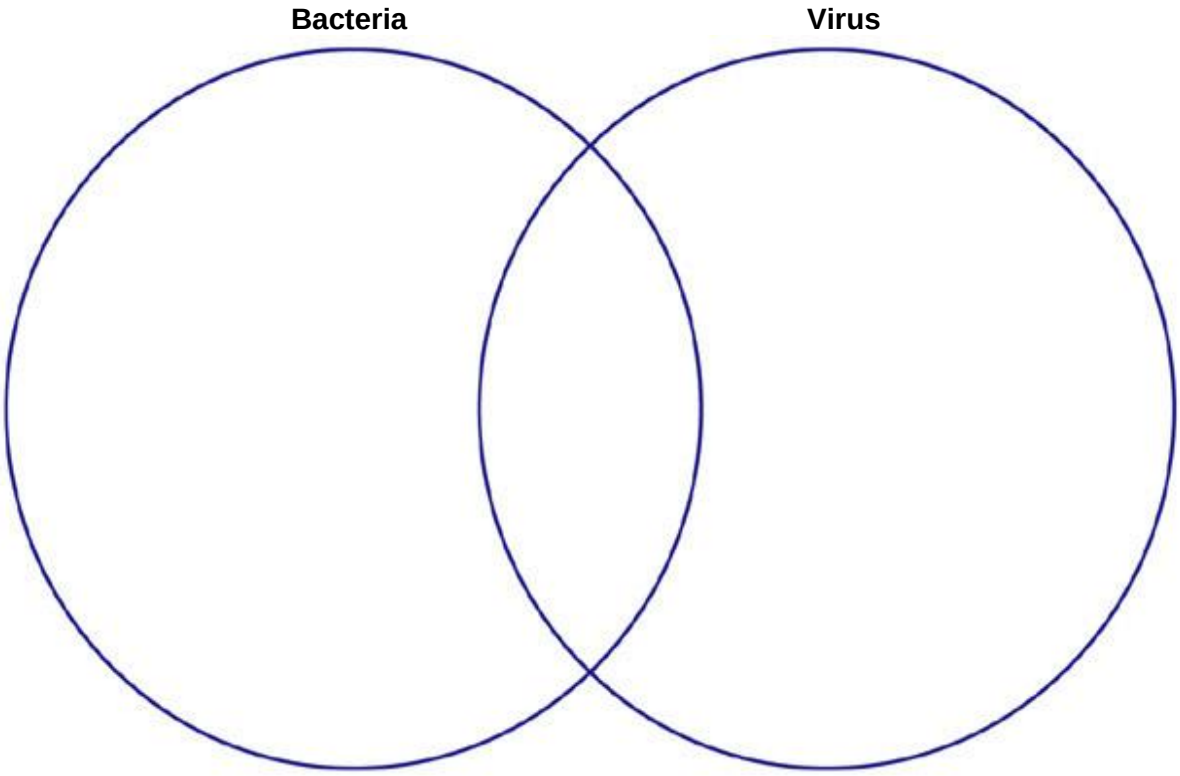
8. **You can tell if someone has HIV or AIDS by looking at them. Myth**

9. **You can get HIV in a swimming pool. Myth**

10. **Persons with AIDS often die from infections that would not kill persons without AIDS. Fact**

Appendix 3A

HIV Infection and AIDS Basics: Get the Facts Handout



HIV stands for…

H_____ (Hint: a person)

I_____ (Hint: easier to get sick)

V_____ (Hint: causes illness)

AIDS stands for…

A _____ (Hint: you can catch it)

I _____ (Hint: immune system)

D_____ (Hint: a lack of)

S _____ (Hint: a collection or group)

Human immunodeficiency virus — a virus that _____ and weakens the _____ system, which fights disease and _____.

Acquired immune deficiency syndrome is caused by _____ and is a late stage of HIV _____.

How can someone get HIV?

- **Mother to _____.**
- **_____ body fluids.**
- **_____ to blood contact.**

You cannot get HIV infection from…

- **holding _____.**
- **_____ seats.**
- **sharing _____**
- **being _____with someone with HIV.**
- **_____ unless there is an open sore.**
- **sharing _____ and _____.**
- **getting an _____ bite.**
- **_____ air.**
- **_____ in a swimming pool.**
- **_____ blood.**

There is _____ cure for HIV/AIDS.

How does a person find out if they have HIV?

You cannot tell by _____ at a person.
You must go to the doctor and get an _____ _____.

How can a person avoid getting HIV?

Pregnant women should be _____ for HIV.
Avoid contact with sexual _____ _____.
Avoid contact with _____

Appendix 3B Answer Key

HIV Infection and AIDS Basics: Get the Facts Handout

HIV stands for…
Human. (Hint: a person)
Immunodeficiency. (Hint: easier to get sick)
Virus. (Hint: causes illness)

AIDS stands for…
Acquired (Hint: you can get it)
Immune (Hint: immune system)
Deficiency (Hint: a lack of)
Syndrome (Hint: a collection or group)

Human immunodeficiency virus — a virus that **destroys** and weakens the **immune** system, which fights disease and **infection**.

Acquired immune deficiency syndrome is caused by the **human immunodeficiency virus (HIV)** and is a late stage of HIV **infection**.

How can someone get HIV?
- Mother to **infant**.
- **Sexual** body fluids.
- **Blood** to blood contact.

You cannot get HIV/AIDS from…
- holding **hands**.
- **toilet** seats.
- sharing **drinks**
- being **friends** with someone with HIV/AIDS.
- **kissing** unless there is an open sore.
- sharing **pens** and **pencils**.
- getting an **insect** bite.
- **breathing** air.
- **swimming** in a pool.
- **donating** blood.

There is **no** cure for HIV/AIDS.

How does a person find out if they have HIV?
You cannot tell by **looking** at a person.
You must go to the doctor and get an **HIV test.**

How can a person avoid getting HIV/AIDS?
Pregnant women should be **screened** for HIV.
Avoid contact with sexual **body fluids**.
Avoid contact with **blood**

Appendix 4A

Cast Study Scenarios — What Would You Say?

Scenario 1: Brian

Brian is 12 years old and he lives with his parents and his pet dog. Brian's next door neighbor, Stevie, has HIV. Brian is afraid to play video games with Stevie out of fear that he will catch the virus. Can Brian catch the virus by playing video games with Stevie?

What would you tell Brian?

Scenario 2: Jessica

Jessica and Samantha are best friends. Samantha is HIV-positive. One day, Jessica and Samantha go to the movies. Jessica orders popcorn and a drink. During the movie, Jessica shares her popcorn, but not her drink for fear of catching HIV. Could Jessica possibly get HIV from sharing her drink?

What would you tell Jessica? Is it a good idea to share drinks with anyone?

Scenario 3: Timothy

Timothy was just tested for HIV and is waiting for his results. In the meantime, he decides that if he is infected, swimming in hot water might cure the disease. Is Timothy basing his actions on myth or fact?

What would you tell Timothy?

Scenario 4: Esther

Esther is babysitting a neighbor's 2-year-old boy. When Esther tries to put the little boy to bed, he throws a tantrum and bites her so hard that it breaks the skin and draws blood. If the boy were infected with HIV, could Esther possibly get infected this way? If Esther were HIV-positive, could the little boy get infected? How would the presence or absence of open sores in the boy's mouth influence your answers to both questions?

What would you tell Esther? What would you tell the little boy's parents?

Appendix 4B Answer Key

Cast Study Scenarios — What Would You Say?

Scenario 1: Brian

What would you tell Brian?

I would tell Brian that he will not catch HIV from by playing video games with Stevie. Many studies have shown that HIV is not spread by casual contact, such as playing video games.

Scenario 2: Jessica

What would you tell Jessica? Is it a good idea to share drinks with anyone?

I would tell Jessica that it is highly unlikely that she will catch HIV by sharing a drink with Samantha. I would go on to say, however, that there are many other infections that can be spread by sharing drinks and that she should not share drinks with anyone.

Scenario 3: Timothy

What would you tell Timothy?

Timothy is not only basing his actions on myth, but his actions might be dangerous. Although HIV can be inactivated or destroyed by heat, raising internal body temperature would kill a person long before the virus in their system is destroyed. People have died from hyperthermia when they stayed in hot tubs and saunas for too long.

Scenario 4: Esther

What would you tell Esther? What would you tell the little boy's parents?

I would tell Esther that HIV transmission through bites is highly unlikely. The virus is not found in saliva. For transmission to occur, if the boy were infected, he would have to have his blood in his mouth to transmit the infection to Esther. If Esther were infected, the boy would have to have open sores in his mouth or some other way for the virus to get into his body to become infected. I would tell the same thing to the boy's parents. I would also caution Esther about the very real risk of bacterial infection after a human bite and suggest that she contact a physician, especially if there is persistent pain, redness, or swelling around the bite site.

Reflection Journal Questions (Appendix 5)

Take a moment to think about everything you have learned today in class, and answer the following questions:

1. **What are some behaviors that might put teens at risk for HIV?**

2. **What is something you would say to a friend or family member who's afraid that they might have HIV?**

3. **Given the facts that you have heard today, what is a myth that you have heard but was not discussed in class?**

4. **What questions do you have that might not have been addressed in class today?**

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