

# **HIV/AIDS**

by

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**CDC's 2007 Science Ambassador Program**

This lesson is designed for a 10th grade biology course. The lesson uses scientific research information to correct misconceptions, answer learning guides, and present posters on topics associated with HIV/AIDS. A review activity will then allow students to work together to summarize key points about HIV/AIDS, while simulating the contagiousness of a virus throughout the class

**Disclaimer:** The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

# HIV/AIDS

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## Summary

This lesson is designed for a 10th grade biology course. The lesson uses scientific research information to correct misconceptions, answer learning guides, and present posters on topics associated with HIV/AIDS. A review activity will then allow students to work together to summarize key points about HIV/AIDS, while simulating the contagiousness of a virus as a class.

## Learning Outcomes

- Students will be able to clarify misconceptions by defining, comparing, and contrasting the HIV virus and AIDS disease.
- Students will be able to use research to correctly complete questions, construct a poster, and develop a presentation on an assigned subtopic of HIV/AIDS.
- Students will be able to work in groups to complete an HIV/AIDS activity.
- Students will draw conclusions about the spread of viruses by simulating the spread of an infection.

## Materials

1. Photocopy of OK/No Way Pretest – one per student
2. OK/No Way T-chart – Make one large chart for class discussion. See the OK/No Way Sample T-chart for set up
3. Photocopy of OK/No Way Pretest Master List of Questions – one copy per class with each question cut out for use on the T-chart
4. Photocopy of the HIV/AIDS Scavenger Hunt Student Task Cards – one per class with each task cut out for distribution to students. One unique task card per student pair
5. Photocopy of the HIV/AIDS Scavenger Hunt – one per student
6. Computers with Internet access, or copies of Web Resources – one per student
7. Poster paper, 11" x 18" – one per pair of students
8. Colored markers – one set per pair of students
9. Photocopy of the HIV/AIDS review – one per student

## Total Duration

2 hours

# HIV/AIDS

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## Procedures

### Teacher Preparation

- Make copies of the following:
  - OK/No Way Pretest – one per student
  - OK/No Way Pretest Master List – one per class
  - Scavenger Hunt Student Task Cards – one per class
  - Scavenger hunt – one per student
  - Review Activity – one per student
- If computers with Internet access are not available, pre-copy one set of each of the scavenger hunt subtopics' Internet references for use at appropriate lab stations
- View the sample T-chart and construct a large T-chart in the front of the classroom with **OK/No Way** as the two column headings of the chart
- Cut out and separate each of the ten different OK/No Way questions from the pretest master list. Put a small piece of tape on each cut out, and hang them beside the T-chart for placement in the correct column during the teacher-led pretest correction and discussion
- Cut out each of the HIV/AIDS Scavenger Hunt Student Task Cards
- Place a blank poster, colored markers, and a different subtopic card at each lab station. The activity is designed for 12 lab stations consisting of 2 students each (however, topics can be combined if there are fewer students)
- Choose one of the copies of the HIV/AIDS review activity and mark the bottom right corner of the back of the paper with a small x to be used for the virus spread simulation at the end of the lesson (after the review)

### Web Resources

Title: A Glance at the HIV/AIDS Epidemic

URL: <http://www.cdc.gov/hiv/resources/factsheets/At-A-Glance.htm>

Description: This is a CDC website with background information for the teacher on HIV/ AIDS and its distribution.

Title: Mother-to-Child (Perinatal) HIV Transmission and Prevention

URL: <http://www.cdc.gov/hiv/resources/factsheets/perinat1.htm>

Description: This is a CDC website with background information for the teacher on the transmission of HIV/AIDS from a pregnant mother to her unborn child.

Title: HIV Basic Information

URL: <http://www.cdc.gov/hiv/topics/basic/index.htm>

Description: This is a CDC website with background information for the teacher on HIV/AIDS.

Title: Testing411 HIV/AIDS Information site

URL: <http://www.testing411.org>

Description: This website is sponsored by The National Basketball Association (NBA), HBO, the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria (GBC), and the Kaiser Family Foundation. It

provides background information on HIV/ AIDS for the teacher with celebrity public service announcements.

Title: HIV/AIDS Statistics and Surveillance

URL: <http://www.cdc.gov/hiv/topics/surveillance/>

Description: This is a CDC website with background information for the teacher on the transmission of HIV/AIDS.

Title: HIV and its Treatments: What You Should Know

URL: [http://aidsinfo.nih.gov/contentfiles/HIVandItsTreatment\\_cbrochure\\_en.pdf](http://aidsinfo.nih.gov/contentfiles/HIVandItsTreatment_cbrochure_en.pdf)

Description: Sponsored by the U.S. Department of Health and Human Services, this publication contains information on HIV treatments and was used to construct the HIV/ AIDS Review Answer Key.

## **Introduction**

**Duration: 15 minutes**

### **Step 1**

The lesson will begin by distributing an OK/No Way Pretest to each student and allowing students to complete the pretest in pairs by circling the correct answer. Once the student pairs have finished, the teacher can refer to the OK/No Way Pretest Answer Key and the OK/No Way Sample T-chart to guide a discussion of the correct answer for each question while placing each question cut out from the OK/No Way Pretest Master List on the correct side of the OK/No Way T-chart.

### **Web Resources:**

Title: A Glance at the HIV/AIDS Epidemic

URL: <http://www.cdc.gov/hiv/resources/factsheets/At-A-Glance.htm>

Description: This is a CDC website with background information for the teacher on HIV/AIDS and its distribution.

Title: Mother-to-Child (Perinatal) HIV Transmission and Prevention

URL: <http://www.cdc.gov/hiv/resources/factsheets/perinat1.htm>

Description: This is a CDC website with background information for the teacher on the transmission of HIV/AIDS from a pregnant mother to her unborn child.

Title: HIV Basic Information

URL: <http://www.cdc.gov/hiv/topics/basic/index.htm>

Description: This is a CDC website with background information for the teacher on HIV/AIDS.

Title: Testing411 HIV/AIDS Information Site

URL: <http://www.testing411.org>

Description: This website is sponsored by The National Basketball Association (NBA), HBO, the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria (GBC) and the Kaiser Family Foundation. The site provides background information on HIV/ AIDS for the teacher with celebrity public service announcements.

Title: HIV/AIDS Statistics and Surveillance

URL: <http://www.cdc.gov/hiv/topics/surveillance/>

Description: This is a CDC website with background information for the teacher on the transmission of HIV/AIDS

## **Supplemental Documents**

Title: OK/No Way Pretest

Description: HIV/AIDS pretest to be completed by students in pairs and used during the T-chart discussion of answers.

Title: OK/No Way Pretest Answer Key

Description: HIV/AIDS Pretest Answer Key to be used by the teacher to discuss the students' responses to the pretest and correctly construct the T-chart.

Title: OK/No Way Pretest Master List

Description: Pretest questions template ready to be cut out and used by the teacher for T-chart construction as part of the pretest discussion.

Title: OK/No Way Sample T-chart

Description: Sample T-chart and answer key to be used by the teacher for charting and discussing the pretest questions.

## Step 2

**Duration: 1 hour**

After the HIV/AIDS misconceptions have been explored through completion of the T-chart and pretest discussions, students will work in pairs to complete the questions on their assigned HIV/AIDS Scavenger Hunt Student Task Cards. They will use credible websites referred to on each card. One of each of the twelve HIV/AIDS task cards will be given to each student group.

If there are less than twelve student groups, more than one task card can be assigned to each group. If there are more than twelve student groups, more than two students can work in a group. Students will access the websites either by Internet or copied versions of the website documents. Answers to the questions on each card will be written on separate paper to be collected and checked for accuracy using the HIV/AIDS Scavenger Hunt Answer Key. Upon submission of the task card answers, student groups will then construct posters containing images and text representing the most important information from their assigned task cards.

After all posters and task card answer sheets have been checked for accuracy, an HIV/AIDS Scavenger Hunt handout containing the master list of all of the task card questions will be distributed to each student and will be completed as each group takes a turn presenting their poster and answers. All students will submit their completed HIV/AIDS Scavenger Hunt handout for grading using the HIV/AIDS Scavenger Hunt Answer Key.

### Web Resources:

Title: CDC HIV/AIDS Information

URL: <http://www.cdc.gov/hiv>

Description: This is a CDC website with information on HIV/AIDS and its distribution for students to use in answering questions on their assigned student task cards.

Title: AIDS.gov

URL: <http://www.aids.gov>

Description: This is a U.S. Department of Health and Human Services website with information on HIV/AIDS for students to use in answer suggestions on their assigned student task cards.

Title: HIV and AIDS

URL: <http://www.fda.gov/oashi/aids/hiv.html>

Description: This is a U.S. Food and Drug Administration website with information on the historical timeline of HIV/AIDS for students to use in answering questions on their assigned student task cards.

Title: Testing411 HIV/AIDS Information site

URL: <http://www.testing411.org>

Description: This website is sponsored by The National Basketball Association (NBA), HBO, the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria (GBC) and the Kaiser Family Foundation. The site has background information on HIV/AIDS including celebrity public service announcements that the students can use in answering questions on their assigned student task cards.

Title: AIDS Info

URL: <http://aidsinfo.nih.gov>

Description: This website is sponsored by The U.S. Department of Health and Human Services with information on HIV/AIDS for students to use in answering questions on their assigned student task cards.

### Supplemental Documents:

Title: HIV/AIDS Scavenger Hunt Student Task Cards

Description: A set of twelve unique task cards dealing with a different subtopic of HIV/AIDS and have related questions with suggested references. References guide each pair of students toward finding information to answer questions.

Title: HIV/AIDS scavenger hunt

Description: HIV/AIDS comprehensive worksheet that contains all of the questions from all of the task cards. Students will complete the worksheet as the groups present their posters and student task card questions.

Title: HIV/AIDS Scavenger Hunt Answer Key

Description: This document will be used by the teacher to check the students' responses to the HIV/AIDS Scavenger Hunt Student Task Card questions before they are presented to classmates and to check the scavenger hunt worksheets based on the student presentations.

## **Conclusion**

**Duration: 15 minutes**

After completing the HIV/AIDS presentations and scavenger hunt worksheets each student will work with classmates to complete the HIV/AIDS review worksheet. **Please note:** The final part of the review requires one of the worksheets have a small x on the back bottom right corner to be used for the virus spread simulation after the review **before** distribution to the students.

Worksheets will be given to each student. However, students will only be allowed to answer one question per worksheet and must sign their name after their answer. In order to complete the review, students must circulate their worksheet among classmates and assist each other with obtaining all of the answers.

Once all of the students have completed their reviews, the teacher can use the HIV/AIDS Review Answer Key to discuss the answers with the class. The final part of the review is to be done as a surprise to the students. After discussing the answers to the review, have students flip their papers over to the back and explain that one paper was marked at the bottom right corner with an x to represent an unknown virus within the community. Explain that this activity was a simulation designed to demonstrate the speed and extent to which viruses have the potential spread throughout a community.

Have the student with the x paper hold it up in the air. **Tell students that the paper with the x designates the carrier of the simulated virus and that this mock virus can be spread through transfer of paper fibers from one worksheet to the next.** Identify the population most at risk for infection by having any student who got an answer to their review sheet directly from the student with the x paper hold their papers in the air. Clarify that the papers had to exchange fibers to transmit the disease. Therefore ask the students about who didn't actually touch the x paper (while obtaining the answer from its owner). Those students can put their papers down. Then show how quickly the unknown virus spreads by repeating the procedure for identifying at risk students by having any student who obtained an answer from any of the others with raised hands to also put their papers in the air. Discuss how quickly the simulated virus spread throughout the class or why it might not have spread. **Have the students list ways the spread could have been prevented (such as avoiding paper contact, limiting movement of papers, laminating, or covering all papers before contact).**

**Note:** The final activity is simulated virus transmission. Due to the stigma associated with many actual viruses, avoid making a direct connection between the x on the paper and the individual owning the paper or any real viruses. Also, to avoid any misconceptions over the methods of spreading HIV, be sure to clarify the HIV/AIDS is not spread by normal day-to-day contact such as paper passing.

## Web Resources

Title: A Glance at the HIV/AIDS Epidemic

URL: <http://www.cdc.gov/hiv/resources/factsheets/At-A-Glance.htm>

Description: This is a CDC website with quick reference information on HIV/AIDS and its distribution that was used to construct the HIV/AIDS Review Answer Key.

Title: HIV Basic Information

URL: <http://www.cdc.gov/hiv/topics/basic/index.htm>

Description: This is a CDC website with background information on HIV/AIDS that was used to construct the HIV/AIDS Review Answer Key.

Title: HIV/AIDS Statistics and Surveillance

URL: <http://www.cdc.gov/hiv/topics/surveillance/>

Description: This is a CDC website with background information on the transmission of HIV/AIDS that was used to construct the HIV/AIDS Review Answer Key.

Title: HIV/AIDS Topics, Questions and Answers, Testing

URL: <http://www.cdc.gov/hiv/topics/testing/qa.htm>

Description: This is a CDC website with information on HIV/AIDS testing used to construct the HIV/AIDS Review Answer Key.

Title: Testing411.org HIV/AIDS Information site, Testing Basics

URL: <http://www.testing411.org>

Description: This website is sponsored by The National Basketball Association (NBA), HBO, the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria (GBC) and the Kaiser Family Foundation. The site provides background information on HIV/AIDS and includes celebrity public service announcements. Information from the Testing Basics Category was used to construct the HIV/AIDS Review Answer Key.

Title: HIV and its treatments

URL: [http://aidsinfo.nih.gov/contentfiles/HIVandItsTreatment\\_cbrochure\\_en.pdf](http://aidsinfo.nih.gov/contentfiles/HIVandItsTreatment_cbrochure_en.pdf)

Description: This publication, sponsored by the U.S. Department of Health and Human Services, contains information on HIV treatments and was used to construct the HIV/AIDS Review Answer Key.

## Supplemental Documents

Title: HIV/AIDS Review

Description: This provides a brief review of HIV/AIDS information to be completed as a class activity. Each student can only give one answer per handout and must sign his or her name after their answer.

Title: HIV/AIDS Review Answer Key

Description: This is an answer key for teachers to use while correcting the HIV/AIDS Review.

## Assessment

Students' baseline knowledge of HIV/AIDS will be evaluated using the OK/No Way Pretest and the pretest answer key. Clarification of students' misconceptions will be measured by teacher observations during the T-chart discussion of the pretest questions. Students' ability to research, define, compare, and contrast HIV/AIDS associated information will be initially evaluated by collecting the HIV/AIDS Scavenger Hunt Student Task Cards and grading them for accuracy using the HIV/AIDS Scavenger Hunt Answer Key. The student generated posters and presentations on each HIV/AIDS Scavenger Hunt Student Task Card subtopic will demonstrate further understanding of the topics, as well as strengthen the students' ability to communicate the subject matter with peers. Overall comprehension of the lesson will be measured with the review activity and by teacher observation during the simulation discussion.



## Modifications

If the Internet is not available, paper copies of each reference can be made available for each group of students.

The virus transmission simulation can be completed by precoating one review paper with commercially available Glow Germ powder and then using a UV light to track the spread of the powder throughout the class after the reviews are completed.

## Extensions

A viral action analogy lesson could be used to explore the concept of how HIV infects cells. The students would view materials such as the PBS interactive AIDS website and the NIH Internet slide tutorial. Then students will develop an analogy that likens the HIV infection process to some other things in their lives, such as a pinch hitter in baseball. Students could also view and discuss movies such as *And the Band Played On* and *Philadelphia* which deal with AIDS and HIV as a theme. Note: **The HIV/AIDS topic can be controversial and proper approvals that comply with school policy should be obtained from parents.**

## Suggested Videos

The Cure  
Philadelphia

## Web Resources:

Title: PBS Nova AIDS Information

URL: <http://www.pbs.org/wgbh/nova/aids/resources.html>

Description: The website is supplemental to the PBS Nova television series and an interactive guide to AIDS information.

Title: National Institutes of Health (NIH) HIV/AIDS Tutorial

URL: [http://nlm.nih.gov/medlineplus/tutorials/aids/htm/\\_no\\_50\\_no\\_0.htm](http://nlm.nih.gov/medlineplus/tutorials/aids/htm/_no_50_no_0.htm)

Description: This website is sponsored by NIH and has an HIV/AIDS tutorial.

## Education Standards

National Science Education Standards

SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES, CONTENT STANDARD F

As a result of activities in grades 9-12, all students should develop understanding of

Personal and community health

Population Growth

Natural Resources

Environmental Quality

Natural and human-induced hazards

Science and technology in local, national, and global challenges

# OK/No Way Pretest

## HIV/AIDS

Heather Fogell and Lori Coles, CDC's 2007 Science Ambassador Program

**Directions:** Circle OK if the statement is TRUE; or NO Way if the statement is false.

1. More than 1 million people in the U.S. are living with HIV. OK / No Way
2. HIV/AIDS is always passed from pregnant mother to child. OK / No Way
3. AIDS and HIV are the same. OK / No Way
4. AIDS is a gay white man's disease. OK / No Way
5. You can't always tell by appearance if someone has HIV. OK / No Way
6. HIV infections are most commonly caused by intravenous drug use. OK / No Way
7. Globally, most new HIV infections are among people under 25 years. OK / No Way
8. Medications can cure HIV/AIDS. OK / No Way
9. All 50 states have people living with AIDS. OK / No Way
10. HIV is transmitted through casual contact such as sharing utensils. OK / No Way

# OK / No Way Pretest Answer Key

## HIV/AIDS

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Directions: Circle OK if the statement is true – and NO Way if the statement is false.

1. More than 1 million people in the US are living with HIV. OK / NoWayA  
ANSWER: At the end of 2003, an estimated 1,039,000 to 1,185,000 persons in the United States were living with HIV (1,3,4).
2. HIV/AIDS is always passed from pregnant mother to child. OK / No Way  
ANSWER: Research published in 1994 showed that zidovudine (ZDV) given to pregnant HIV-infected women reduced this type of HIV transmission. Since then, the testing of pregnant women and treatment for those who are infected have resulted in a dramatic decline in the number of children perinatally infected with HIV (2). Even without ZDV, the virus is not transmitted during every pregnancy.
3. AIDS and HIV are the same. OK / No Way  
ANSWER: AIDS is the final stage of HIV infection (3). HIV infection can, but does not always lead to AIDS (5). AIDS means that the virus has weakened the immune system to a point where it can't fight infection; or AIDS is the advanced stages of HIV infection.
4. AIDS is a gay white man's disease. OK / No Way  
ANSWER: In 2005, blacks (including African Americans), who make up approximately 13% of the US population, accounted for almost half of the estimated number of HIV/AIDS cases diagnosed (1).
5. You can't tell by appearance if someone has HIV. OK / No Way  
ANSWER: Many people who are infected with HIV do not have symptoms for many years (3).
6. HIV infections are most commonly caused by intravenous drug use OK / No Way  
ANSWER: In 2005, the largest estimated proportion of HIV/AIDS diagnoses were for men who have sex with men (MSM), followed by adults and adolescents infected through heterosexual contact (1).
7. Globally, most new HIV infections each year are among people under 25. OK / No Way  
ANSWER: Globally, about half of those newly infected each year are under the age of 25 (4).
8. Medications can cure HIV/AIDS. OK / No Way  
ANSWER: There is no cure for HIV/AIDS (4).
9. All 50 states have people living with AIDS. OK / No Way  
ANSWER: In the United States, AIDS cases have been reported in all 50 states, the District of Columbia and all U.S. territories (4).
10. HIV is transmitted through casual contact such as sharing utensils. OK / No Way  
ANSWER: The virus is not transmitted through day-to-day activities such as shaking hands, hugging, or a casual kiss (3).

## References

1. Centers for Disease Control and Prevention. A Glance at the HIV/AIDS Epidemic [online]. 2007. [cited 2007 July 24]. Available from URL: <http://www.cdc.gov/hiv/resources/factsheets/At-A-Glance.htm>
2. Centers for Disease Control and Prevention. Mother-to-Child (Perinatal) HIV Transmission and Prevention [online]. 2007. [cited 2007 July 24]. Available from URL: <http://www.cdc.gov/hiv/resources/factsheets/perinat1.htm>
3. Centers for Disease Control and Prevention. HIV Basic Information [online]. 2007. [cited 2007 July 24]. Available from URL: <http://www.cdc.gov/hiv/topics/basic/index.htm>
4. Kaiser Family Foundation. HIV/AIDS Information [online]. [cited 2007 July 24]. Available from URL: <http://www.testing411.org>
5. Centers for Disease Control and Prevention. HIV/AIDS Statistics and Surveillance [online]. 2007. [cited 2007 July 24]. Available from URL: <http://www.cdc.gov/hiv/topics/surveillance/>

## OK/No Way Pretest Master List

### HIV/AIDS

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**Directions:** Teacher should cut out and put a piece of tape on each question. After students have completed the OK/No Way Pretest, the cut out questions will be placed on the T-chart in the correct category while discussing the answers with the class. See the HIV/AIDS Sample T-chart for the answer key.

-----CUT HERE-----

**1. More than 1 million people in the US are living with HIV.**

-----CUT HERE-----

**2. HIV/AIDS is always passed from pregnant mother to child.**

**3. AIDS and HIV are the same.**

-----CUT HERE-----

**4. AIDS is a gay white man disease.**

-----CUT HERE-----

**5. You can't always tell by appearance if someone has HIV.**

**6. HIV infections are most commonly caused by intravenous drug use.**

-----CUT HERE-----

**7. Most new HIV infections each year are among people under 25.**

**8. Medications can cure HIV/AIDS.**

-----CUT HERE-----

**9. All 50 states have people with AIDS.**

-----CUT HERE-----

**10. HIV is transmitted through casual contact such as sharing utensils.**



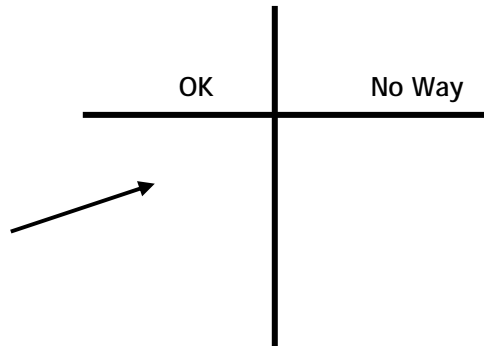
# OK/No Way Sample T-chart

## HIV/AIDS

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Directions: Create a classroom version of the following chart large enough to attach the cutouts of the OK/No Way Master List of Questions. Once the student pairs have completed the OK/No Way Pretest, discuss answers and use the OK/No way Pretest Answer Key to place each cut out question master in the correct column.

### Sample T-chart:



Cut out of each OK/No Way question from master list.

### Answer Key for T-chart:

OK

1. More than 1 million people in the US are living with HIV.
5. You can't tell by appearance if someone has aids.
9. All 50 states have people with AIDS.

No Way

2. HIV is always passed from pregnant mother to child.
3. AIDS and HIV are the same.
4. AIDS is a gay white man disease.
6. HIV infections are most commonly caused by intravenous drug use.
7. Globally, most new HIV infections each year are among people under 25.
8. Medications can cure HIV/AIDS.
10. HIV is transmitted through casual contact such as sharing utensils.

# HIV/AIDS Scavenger Hunt Student Task Cards

## AIDS/HIV

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-----CUT HERE-----

### Transmission of HIV

Use the following websites to answer the questions below about your topic:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinforh.gov>

### Questions

1. When did the Red Cross begin to screen for HIV in their blood supplies?
2. Is AIDS considered an STD (sexually transmitted disease)?
3. Can I get HIV from a tattoo or body piercing?
4. How can a mother transmit HIV/AIDS to her child?

-----CUT HERE-----

### Testing Procedures

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinforh.gov>

### Questions

1. Who should be tested for HIV/AIDS?
2. What information is gained from HIV testing?
3. Is a one time test good enough? Why or why not?
4. Where can I get tested for HIV/AIDS?

## HIV/AIDS

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinforih.gov>

### Questions

1. What is HIV?
2. What is AIDS?
3. How are HIV and AIDS related?

-----CUT HERE-----

## Diagnosis

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinforih.gov>

### Questions

1. How can I tell if I am infected with HIV?
2. How long after a possible exposure should I wait before being tested?
3. What body fluids are used to diagnose HIV?

-----CUT HERE-----

## History of HIV

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinforih.gov>

### Questions

1. When was AIDS first reported?
2. When was AIDS identified as being caused by HIV?
3. What was the first drug approved for the treatment of AIDS and when was it approved?
4. When did a scientific review panel confirm that condoms are effective against HIV/AIDS?

## Data

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv/topics/surveillance/basic.htm>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinfo.nih.gov>

### Questions

1. Which age category had the highest estimated number of AIDS cases in 2006?
2. Which race or ethnic group had the highest estimated number of AIDS cases in 2006?
3. How many estimated cases of HIV/AIDS among people age 15-19 were there in 2006?

-----CUT HERE-----

## Treatment

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinfo.nih.gov>

### Questions

1. What is the cure for AIDS?
2. What type of vaccine is available for AIDS?
3. What treatment options are available?

-----CUT HERE-----

## Symptoms

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinfo.nih.gov>

### Questions

1. How soon will I begin to show symptoms of AIDS after being infected with HIV?
2. What are the symptoms of advanced HIV infection?

## Prognosis

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinfonih.gov>

### Questions

1. What are some reasons that anti-HIV medications cannot be taken for a lifetime?
2. How often will I need to test for viral load to be sure the medication is working properly?

-----CUT HERE-----

## Prevention

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinfonih.gov>

### Questions

1. What are 2-3 ways that sexually active individuals can protect themselves from the sexual transmission of HIV?
2. How can injection drug users reduce their risk for HIV infection?
3. What are the ABCs of HIV prevention?

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## Celebrity Cases

Answer the following questions for each of the celebrities below:

1. What are they famous for?
2. When and how did they contract HIV/AIDS?
3. Are they living or dead today?

### Celebrities

Arthur Ashe

Rock Hudson

Magic Johnson

Ryan White

## Origin of HIV

Use the following websites to answer the questions below:

<http://www.cdc.gov/hiv>

<http://www.aids.gov>

<http://www.fda.gov/oashi/aids/hiv.html>

<http://www.testing411.org>

<http://aidsinforh.gov>

### Questions

1. What organism is believed to be the source of HIV infections in humans?
2. How did HIV move from this organism to humans?

# HIV/AIDS Scavenger Hunt Worksheet

## HIV/AIDS

Heather Fogell and Lori Coles, CDC's 2007 Science Ambassador Program

**Directions: Fill in the following information as it is presented by each group.**

### HIV/AIDS

1. What is HIV?
2. What is AIDS?
3. How are HIV and AIDS related?

### Origin of HIV

1. What organism is believed to be the source of HIV infections in humans?
2. How did HIV move from this organism to humans?

### History of HIV

1. When was AIDS first reported?
2. When was AIDS identified as being caused by HIV?
3. What was the first drug approved for the treatment of AIDS and when was it approved?
4. When did a scientific review panel confirm that condoms are effective against HIV/AIDS?

## **Transmission of HIV/AIDS**

1. When did the Red Cross begin to screen their blood supplies for HIV?
2. Is AIDS considered an STD (sexually transmitted disease)?
3. Can a person get HIV/AIDS from a tattoo or body piercing?
4. How can a mother give HIV/AIDS to her child?

## **Diagnosis**

1. How can people know if they are infected with HIV?
2. How long after a possible exposure should someone wait before being tested?
3. What are the body fluids used to diagnosis HIV?

## **Symptoms**

1. How soon will symptoms of AIDS begin to show after being infected with HIV?
2. What are the symptoms of advanced HIV infection?

## **Data**

1. Which age category had the highest estimated number of AIDS cases in 2006?
2. Which race or ethnic group had the highest estimated number of AIDS cases in 2006?
3. How many estimated cases of HIV/AIDS among people age 15-19 were there in 2006?



## **Testing Procedures**

1. Who should be tested for HIV/AIDS?
2. What information is gained from HIV testing?
3. Is a one time test good enough? Why or why not?
4. Where can people get tested for HIV/AIDS?

## **Treatment**

1. What is the cure for AIDS?
2. What type of vaccine is available for AIDS?
3. What treatment options are available for a person living with HIV?

## **Prognosis**

1. What are some of the challenges of taking anti-HIV medications for a lifetime?
2. How often is 'viral load' tested to be sure the medication is working properly?

## **Prevention**

1. What are 2-3 ways that sexually active individuals can protect themselves from the sexual transmission of HIV?
2. How can injection drug users reduce their risk for HIV infection?
3. What are the ABCs of HIV prevention?

## **Celebrity Cases**

Arthur Ashe

Rock Hudson

Magic Johnson

Ryan White

# HIV/AIDS Scavenger Hunt Worksheet- Answer Key

## HIV/AIDS

Heather Fogell and Lori Coles, CDC's 2007 Science Ambassador Program

**Directions: Fill in the following information as it is presented by each group.**

### HIV/AIDS

1. What is HIV?  
ANSWER: HIV stands for human immunodeficiency virus. (1/Basic Information)
2. What is AIDS?  
ANSWER: AIDS stands for acquired immunodeficiency syndrome. (1/Basic Information)
3. How are HIV and AIDS related?  
ANSWER: HIV is the virus that causes AIDS. AIDS is the advanced stage of HIV infection, also when a person's CD4 count drops below a certain level. (1/Basic Information)

### Origin of HIV

1. What organism is believed to be the source of HIV infections in humans?  
ANSWER: A type of chimpanzee in West Africa. (1/Basic Information)
2. How did the HIV move from this organism to humans?  
ANSWER: The virus most likely jumped to humans when humans hunted these chimpanzees for meat and came into contact with their infected blood. (1/Basic Information)

### History of HIV

1. When was AIDS first reported?  
ANSWER: 1981 (3/Historical Timeline)
2. When was AIDS identified as being caused by HIV?  
ANSWER: 1984 (3/Historical Timeline)
3. What was the first drug approved for the treatment of AIDS and when was it approved?  
ANSWER: AZT in 1987 (3/Historical Timeline)
4. When did a scientific review panel confirm condoms are effective against HIV/AIDS?  
ANSWER: 2001 (3/Historical Timeline)

## Transmission of HIV/AIDS

1. When did the Red Cross begin to screen their blood supplies for HIV?  
ANSWER: 1985 (3/Historical Timeline)
2. Is AIDS considered an STD (sexually transmitted disease)?  
ANSWER: AIDS is transmitted by having sex (anal, oral, or vaginal) with a person infected with HIV. (1/Basic Information)
3. Can a person get HIV/AIDS from a tattoo or body piercing?  
ANSWER: Yes, a risk of HIV transmission does exist if instruments contaminated with blood are either not sterilized, disinfected, or are used inappropriately between clients. (1/Transmission Q&A)
4. How can a mother transmit HIV/AIDS to her child?  
ANSWER: An HIV infected woman can pass HIV to her baby through pregnancy, labor, or delivery, as well as through breast milk. (4/The Basics)

## Diagnosis

1. How can a people know if they are infected with HIV?  
ANSWER: The only way to be sure is to get an HIV test. (4/The Basics)
2. How long after a possible exposure should someone wait before being tested?  
ANSWER: Most people develop antibodies 2-8 weeks after exposure. Ninety-seven percent of people develop antibodies in the first 3 months. (1/Testing Q&A)
3. What are the body fluids used to diagnosis HIV?  
ANSWER: Blood, urine, and oral fluid. (1/Testing Q&A)

## Symptoms

1. How soon will symptoms of AIDS begin to show after being infected with HIV?  
ANSWER: The time between HIV infection and progression to AIDS differs for each person and depends on many factors, including a person's health status and their health-related behaviors. With a healthy lifestyle, the time between HIV infection and developing AIDS-related illnesses can be 5 to 15 years, sometimes longer. (2/Basic Information)
2. What are the symptoms of advanced HIV infection?  
ANSWER: Answers will vary, but may include the following warning signs: rapid weight loss, dry cough, recurring fever or profuse night sweats, profound and unexplained fatigue, swollen lymph glands in the armpits, groin, or neck, diarrhea that lasts for more than a week, white spots or unusual blemishes on the tongue, in the mouth, or in the throat, pneumonia, red, brown, pink, or purplish blotches on or under the skin or inside the mouth, nose, or eyelids, and other neurological disorders. (1/Q&A)

## Data

1. Which age category had the highest estimated number of AIDS cases in 2006?  
ANSWER: 40-44 (1)
2. Which race or ethnic group had the highest estimated number of AIDS cases in 2006?  
ANSWER: African Americans, or blacks (1)
3. How many estimated cases of HIV/AIDS among people age 15-19 were there in 2006?  
ANSWER: 1,332 (1)

## Testing Procedures

1. Who should be tested for HIV/AIDS?  
ANSWER: CDC recommends that everyone between the ages of 13 and 64 should be screened for HIV at least once in their lifetime and more often if they are at risk for HIV. (4/HIV Testing)
2. What information is gained from HIV testing?  
ANSWER: Most HIV tests are designed to detect the antibodies that the body produces to fight HIV once infection occurs. (4/HIV Testing). NOTE: Some students may mention RNA testing which works in a different way.
3. Is a one time test good enough? Why or why not?  
ANSWER: No. CDC recommends that everyone between the ages of 13 and 64 should be screened for HIV at least once in their lifetime and more often if they are at risk for HIV because the antibodies are not present immediately after exposure. (4/HIV Testing)
4. Where can people get tested for HIV/AIDS?  
ANSWER: NOTE: The answer may include any of the following: health departments, doctors' offices, hospitals, and sites specifically set up to provide HIV testing. Testing sites can be located by visiting the [CDC HIV testing database](#) or by calling CDC-INFO (formerly the CDC National AIDS Hotline) at 1-800-CDC-INFO (1-800-232-4636) 24 hours/day. (1/Basic Information)

## Treatment

1. What is the cure for AIDS?  
ANSWER: There is no cure for HIV at this time. (4/The Basics)
2. What type of vaccine is available for AIDS?  
ANSWER: There is no vaccine to prevent someone from becoming infected with HIV at this time. (4/The Basics)
3. What treatment options are available?  
ANSWER: The answer may include any of the following: There are different types of treatment options available. There are treatments that help to prevent or treat the many different types of 'opportunistic infections' that people with HIV/AIDS are susceptible to. (4/The Basics)

## Prognosis

1. What are some challenges of taking anti-HIV medications for a lifetime?  
ANSWER: Once treatment has begun, it may be necessary to continue taking anti-HIV medications for life. In addition to the desired effects, anti-HIV medications may have negative side effects, some of which are serious. If the virus is not suppressed completely, drug resistance develops. Side effects and drug resistance may limit future treatment options. Finding other medications can be expensive; also the regimens can be complicated and difficult to remember (5/HIV and Its Treatment).
2. How often is viral load tested to be sure the medication is working properly?  
ANSWER: Viral load should be tested 2 to 8 weeks after starting treatment, then every 3 to 6 months throughout treatment to make sure the drugs are still working. HIV treatment should reduce viral load to the point at which it is undetectable. Specific treatment regimens are determined by health care providers. (5/HIV and Its Treatment)

## Prevention

1. What are 2-3 ways that sexually active individuals can protect themselves from the sexual transmission of HIV?  
ANSWER: When used correctly and consistently, latex condoms are highly effective in preventing the transmission of HIV. Make an agreement with a partner who is HIV negative to be sexually faithful to each other and stick to it. (4/The Basics)
2. How can injection drug users reduce their risk for HIV infection?  
ANSWER: Use only clean needles, syringes, and other works. Never share needles, syringes, or other works; be careful not to expose yourself to another person's blood; get tested for HIV at least once a year, and consider getting counseling and treatment for drug use. (1/Basic Information)
3. What are the ABCs of HIV prevention?  
ANSWER A = Abstinence, B = Be Faithful, C = Condoms (1/Basic Information)

## Celebrity Cases

### Arthur Ashe

He was a famous black tennis player winning the U.S. Open in 1968. He contracted HIV during a blood transfusion for a heart surgery in 1988. He kept his illness private until 1992. He died from complications from AIDS in 1993.

### Rock Hudson

He was a popular American TV and movie actor of the 1950s and 1960s. He contracted HIV through unprotected homosexual relations. He was diagnosed with AIDS in 1984 but told the public he had liver cancer. A year later he released that he was dying of AIDS. He died in October 1985.

### Magic Johnson

He was a famous NBA player. He contracted HIV by having unprotected heterosexual relations. He was diagnosed with HIV in 1991. He is still living today thanks to exercise, healthy diet, and anti-HIV drugs.

### Ryan White

He was a young man famous for having HIV/AIDS. He contracted HIV from a blood treatment for hemophilia. He was diagnosed with HIV in 1984. He died of AIDS-related pneumonia in 1990.

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# HIV/AIDS Review

## HIV/AIDS

Heather Fogell and Lori Coles, CDC's 2007 Science Ambassador Program

**Directions:** Complete the review by working together with classmates. Each student may only answer one question per paper and must sign the space after the answer given.

1. What is the connection between HIV and AIDS?

\_\_\_\_\_  
(Answered by)

2. List three ways HIV is transmitted.

\_\_\_\_\_  
(Answered by)

3. How soon after potential exposure to the virus could a test indicate infection?

\_\_\_\_\_  
(Answered by)

4. Compare the symptoms of initial HIV infection with advanced AIDS.

\_\_\_\_\_  
(Answered by)

5. Which ethnic group has the highest estimated number of AIDS cases?

\_\_\_\_\_  
(Answered by)

6. Who is recommended to be tested?

\_\_\_\_\_  
(Answered by)

7. Why is the treatment regimen for an HIV infected individual always changing?

\_\_\_\_\_  
(Answered by)

8. List two potential problems associated with the treatment procedures for HIV?

\_\_\_\_\_  
(Answered by)



9. Who is responsible for preventing the spread of HIV?

---

(Answered by)

10. List three ways to prevent the transmission of HIV.

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(Answered by)

# HIV/AIDS Review Answer Key

## HIV/AIDS

Heather Fogell and Lori Coles, CDC's 2007 Science Ambassador Program

**Directions: Complete the review by working with classmates. Each student may answer only one question per paper and must sign the space after the answer is given.**

1. What is the connection between HIV and AIDS?

ANSWER: HIV infection can, but does not always, lead to AIDS. AIDS occurs when a person's CD4 count drops below a certain level in response to HIV infection. (3)

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(Answered by)

2. List three ways HIV is transmitted.

ANSWERS: Answers may vary but all must include contact with blood, semen, or vaginal fluid from an infected person. The three most common ways HIV is transmitted is through unprotected sex, sharing needles, childbearing, or breast feeding from an infected mother (1, 2).

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(Answered by)

3. How soon after potential exposure to the virus could a positive indicate infection?

ANSWER: Most people develop antibodies 2-8 weeks after exposure. Ninety-seven percent of people develop antibodies in the first 3 months. (4).

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(Answered by)

4. Compare the symptoms of initial HIV infection with advanced AIDS

ANSWER: Initial HIV might be asymptomatic or might have symptoms similar to the flu. Answers for advanced HIV might include rapid weight loss, dry cough, recurring fever or profuse night sweats, profound and unexplained fatigue, swollen lymph glands in the armpits, groin, or neck, diarrhea that lasts for more than a week, white spots or unusual blemishes on the tongue, in the mouth, or in the throat, pneumonia, red, brown, pink, or purplish blotches on or under the skin or inside the mouth, nose, or eyelids, and memory loss, depression, and other neurological disorders. (4).

---

(Answered by)

5. Which ethnic group has the highest estimated number of AIDS cases?

ANSWER: In 2005, blacks (including African Americans), who make up approximately 13% of the US population, accounted for almost half of the estimated number of HIV/AIDS cases diagnosed (1).

---

(Answered by)

6. Who is recommended to be tested?

ANSWER: CDC recommends that everyone between the ages of 13 and 64 should be screened for HIV at least once in their lifetime and more often if they are at risk for HIV. (5)

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(Answered by)

7. Why is the treatment regimen for an HIV-infected individual always changing?

ANSWER: The virus might not suppress completely and drug resistance might develop. (6) Also, patients may be switched to newer drugs or have additional drugs added to help suppress viral replication.

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(Answered by)

8. List two potential problems associated with the treatment procedures for HIV?

ANSWER: Answers may include any two of the following: negative side effects, cost, resistance, lifelong, and no cure. (6)

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(Answered by)

9. Who is responsible for preventing the spread of HIV?

ANSWER: Everyone (5)

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(Answered by)

10. List three ways of preventing the transmission of HIV.

ANSWER: Answers may include any three of the following: Abstinence, Be Faithful, Use Condoms, and avoid high-risk behaviors (3).

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(Answered by)

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