Black Death and HIV/AIDS



Critical Challenge

Critical question Which is worse: Black Death or HIV/AIDS?

Overview

In this challenge, students compare the effects of the Black Death of the Middle Ages to the HIV/AIDS epidemic. Students begin by studying the preventive measures and treatment attempted, and the physical, social and economic effects of the bubonic plague. As an introduction to the growth potential of diseases, including modern diseases, students take part in a scientific experiment where one student "infects" almost the entire class simply by having everyone exchange liquids with three others. This experiment on exponential growth leads to the study of HIV/AIDS. Supplementing supplied briefing materials with independent print and electronic research, students learn about the nature and effects of HIV/AIDS. In the critical challenge, students decide which disease is more devastating—the Black Death or HIV/AIDS. As an extension, students create a poster representing one lesson they have learned about the disease(s).

Objectives

Broad understanding

Readily transmittable diseases, such as the bubonic plague during the Middle Ages and HIV/AIDS in modern times, can have devastating human, economic, political and social effects.

Requisite tools

Background knowledge

- basic knowledge of Black Death and HIV/AIDS (origins, causes, physical effects, treatments, preventive measures, social and economic effects)
- understanding of exponential growth

Criteria for judgment

• criteria for destructive effects (e.g., difficulties in control, physical, social and economic effects)



Critical thinking vocabulary



Thinking strategies



Habits of mind

· empathy



Suggested Activities

Pre-planning

Assemble materials for experiment

In Session Two, we propose a demonstration of how quickly diseases can spread—even those requiring exchange of fluids. This requires providing one glass for every student—all but one of which are halffilled with water; the remaining glass is half-filled with a clear low concentrate acid. This acid can easily be obtained from the chemistry teacher. In addition, you will need red cabbage juice to serve as an acid indicator. This can be made by boiling some red cabbage in a non-metallic vessel (e.g., glass, Corning ware). Alternatively, let red cabbage soak in hot water overnight. The red cabbage juice should look dark purple (Source: http://www.cheminst.ca/ncw/experiments/ eredcabb.html).

Study about **HIV/AIDS**

- It is likely that students will have many questions, and perhaps also misconceptions, about HIV/AIDS. You may want to familiarize yourself with the briefing sheets we provided and with some of the interest sources listed in References, to help you respond to students' comments.
- Decide in advance whether you will allocate roles or allow students to select their own. We have assumed that students will work in pairs on this project. Encourage those students who want to focus on the same role to work together. Although it is not optimal, consider allowing more than one pair of students to research the same role. A significant limitation on students' choices may be availability of resources—especially if an interview is planned.

Session One

Blackline Masters #1-5

Introduce catastrophic diseases

Ask students to brainstorm some of the world's worst diseases. Students' response will likely include HIV/AIDS, cancer, small pox and influenza. Generate a list of their responses. Discuss why students believe these diseases are among the worst. Typically, students will not think of the Black Death because it is a disease that has little effect on their lives. Some students may have had friends or family members die from HIV/AIDS or cancer, but not Black Death.

Discuss the **Black Death**

On an overhead projector place depictions of the victims of the Black Death. Locate these in student textbooks or search http:// images.google.com/ for "Black Death." Briefly explain the origin of the term "Black Death." During the Middle Ages, people termed the illness black death because of the black spots that appeared on their skin. These spots were caused when dried blood under the skin turned a blackish colour. Explain to students that, during the Middle Ages, Asia and Europe were struck by a deadly disease known as the bubonic plague. Between 1347 and 1352, over 25 million people were killed in Europe as a result of the plague. Draw the comparison between the death toll of this plague and Canada's current population.

Create base groups

- Divide students into groups of four (base groups). Distribute a different briefing sheet to each student in the group on one of the following aspects of the Black Death in Europe:
 - *Physical effects* (Blackline Master #1A–B);
 - Prevention and treatment (Blackline Master #2);
 - Social and cultural effects (Blackline Master #3A–B);
 - Economic and political effects
 (Blackline Master #4).

Acquire information in expert groups

Rearrange students into new groups based on their assigned topics (expert groups). In their expert groups, students are responsible for taking notes or highlighting the important ideas of the material provided in the briefing sheets. These students will be expected to teach this material to the members of their base group members.



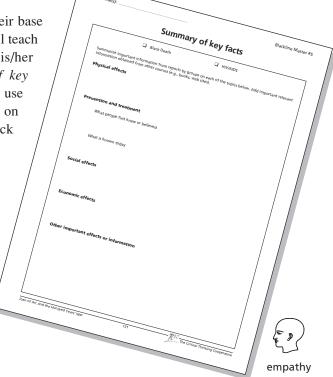
Teach other students

Direct students to return to their base groups where each student will teach the other group members his/her topic. Distribute *Summary of key facts* (Master #5) for students' use in recording the main points on all four aspects of the Black Death.

Discuss student reactions

Once students have been introduced to the four topics, invite them to share their reactions to this disaster.

Encourage students to imagine the feelings of people at the time—losing so much to a disease they did not understand and were unable to control.



Session Two

Blackline Masters #5-7

Conduct transmission experiment

As a powerful way of demonstrating how quickly diseases can spread—even those that require exchange of fluids—ask students to imagine that they have been invited to a party. Distribute half-full glasses of water to all but one student in the class (only you should know this person's identity). The one student unknowingly is to receive a half-full glass of the low concentrate acid. The idea is that the student with the acid is infected with a communicable disease such as HIV/AIDS. This student will spread the disease to the rest of the class. Be emphatic with students that all the glasses contain a liquid that they are NOT to drink, touch or spill. Explain to students that they must share their liquid with three other students by pouring the contents of their glass into another and then pouring half of that liquid back into their own glass.

Test results

➤ When everyone has exchanged fluids with three others, test their glasses with an acid indicator (i.e. cabbage juice) to determine which students have been infected. Most of the students will have been infected—their liquids will colour. Explain that only one student's glass contained an acid mixture while the rest of the glasses contained water. Tell students which student had the acid mixture. Ask students how they think they were infected.

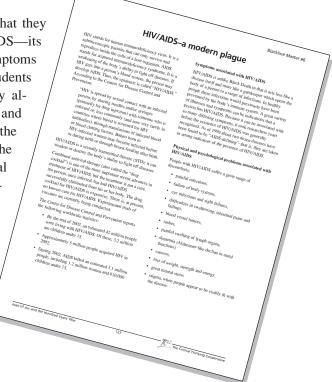
Explain exponential mathematics

On an overhead projector, use a diagram to demonstrate how easily one person can infect up to 27 people. (One person infects three people; those three people each infect three people, and these nine people infect three people each.) Students should begin to see how easily HIV/AIDS can be spread. Explain to students that this concept is called "exponential growth."



Introduce study of HIV/AIDS

Invite students to volunteer what they already know about HIV/AIDS—its transmission, prevention, symptoms and so on. Brainstorm with students similarities between what they already know about HIV/AIDS and Black Death. Generate a list of the similarities and differences on the overhead. Although the actual diseases are different, their effects are quite similar. Some similarities may include the vast scope of death, the destruction of families, and the destruction of economies. Distribute the two background sheets, HIV/ AIDS—a modern plague (Blackline Master #6)



and *HIV/AIDS in East-central Africa* (Blackline Master #7) to every student. Also distribute a copy of Blackline Master #5 for student use in summarizing the key facts. Ask students to learn more about the parallels between HIV/AIDS and Black Death by reading the two briefing sheets and recording the key facts on Blackline Master #5 for each of the four aspects of the epidemic:



criteria for

devastating

disease

- physical effects;
- prevention and treatment;
- social and cultural effects;
- · economic and political effects.

Session Three

Carry out additional research

▶ Blackline Masters #6–7 provide an introduction to HIV/AIDS, but students will need to supplement these sources with independent research. Provide students with time in the library and the computer lab to research HIV/AIDS. Check that the websites listed in the References are still accessible, and provide these and others as starting points for students' research. If needed, arrange for an introductory lesson in the library where students can learn to use the Internet more effectively. Remind students to locate and record sufficient information about each of the four aspects of the epidemic.

Session Four

Blackline Master #8

Discuss the main findings

When students have completed their research, invite them to share their main facts with the rest of the class. Again discuss the similarities and differences between the Black Death and HIV/AIDS.

Present the critical challenge Distribute Comparing Black
Death and HIV/
AIDS (Blackline
Master #8) to
every student. You may
want to enlarge this chart to ledger
size (11 x 17). Present the critical question:

Which is worse: Black Death or HIV/AIDS?

Comparing Black Death and HIV/AIDS

Ask students to use the information gathered on the Black Death and HIV/AIDS to help them answer the critical challenge. Explain that the criteria for determining which disease is worse are the extent of impact on each of the four aspects they have been researching. For each of the four criteria, students must rate which disease is worse.

Debrief the results ➤ Invite students to share each of their four conclusions. Encourage students to debate those conclusions upon which they disagree.

Create a poster

➤ OPTIONAL: As a final project, ask students to create a poster that reflects one lesson they have learned while studying Black Death and HIV/AIDS. The posters should not state the lesson learned, but instead imply the lesson through visual representation. For example, instead of simply stating that the spread of the disease is exponential, students would create an image that vividly depicts this phenomenon. A search for Black Death on Google http://images.google.com/ leads to many contemporary posters and images on the theme. Display the completed posters in the classroom or school hallway. Ask students to determine the lesson represented in each poster.

Evaluation

Blackline Master #9

Assess information and conclusions

- Assess students' assembled information about the Black Death and HIV/AIDS as recorded on *Summary of key facts* (Blackline Master #5) and their conclusions about the worst disease as recorded on *Comparing Black Death and HIV/AIDS* (Blackline Master #8). Use the rubric found in *Assessing the effects* (Blackline Master #9). The assignments are worth 10 marks and are assessed on two criteria:
 - coverage of main ideas,
 - support for conclusions.

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Extension

Invite students to plan and implement an HIV/AIDS awareness week campaign. Students can teach their peers about the dangers of HIV/AIDS as well as preventive measures. Encourage students to develop and distribute informational brochures and posters as well as speak at a school assembly or pep rally.

References

Print resources

Huppert, George (1986). After the Black Death: A Social History of Early Modern Europe. Bloomington, IN; Indiana University Press.

Nardo, Don (Editor) (1999). The Black Death. San Diego, CA: Greenhaven Press.

Picard, Andre (1995). The Gift of Death: Confronting Canada's Tainted Blood Tragedy. Toronto: Harper Collins.

Smith, Raymond A. (Ed) (2001). Encyclopedia of AIDS: A Social, Political, Cultural and Scientific Record of the HIV Epidemic. London: Penguin Books.

Internet sites

Black Death

http://www.encarta.msn.com.find.Concise.aspx

http://www.orb.rhodes.edu/textbooks/westciv/blackdeath.html

http://www.brown.edu/Departments/Italian Studies/dweb/plague/

Images of the Black Death can be found at:

http://www.bnf.fr/enluminures/themes/t_3/ast_3_04.htm

http://www.brown.edu/Departments/Italian Studies/dweb/images/ plague/plague motif.gif

http://images.google.com/ (Search for "Black Death")

HIV/AIDS

There are numerous Internet sites which focus on HIV/AIDS. Here are the addresses of some:

http://www.cdcnpin.org/hiv/start.htm

http://www.unaids.org/

http://www.apa.org.pi/aids/resource.html

http://www.aidsinfo.nih.goc/drugs/

http://www.pbs.org/newshour/health/aids/index.html

http://news.bbc.co.uk/1/hi/world/africa/1679619.stm

http://www.pbs.org/newshour/health/aids/index.html

http://www.newint.org The New Internationalist on-line back issue on HIV/AIDS (June 2002). Search "Back Issues" for #346.