

Title: Ring Around the Rosie

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The story of man's evolution is not just our story to tell for we have never been alone in this journey through time. It is not only the story of a species but of all species. It is the story not only of a group but of individuals. Each artist, writer, or dreamer has told their own story thorough their art along with the unique tale told in each strand of our DNA. How does man write the story when confronted by a companion that is now the enemy? What type of weapons have we designed to save our species from these microscopic travelers? For man this is a voyage of discovery, of enlightenment, and of growing self awareness through our arts and our sciences.

Abstract

Evolution is a process that can be explained through our DNA. Science can explain that process but it cannot write the whole story. The fleshing of the story is left to the writers and artist of each generation. In each of the seven plagues we were confronted with an enemy that had no face. Scientist moved to heal the body while artist moved to heal the soul. Now science has given the enemy a face which we recently discovered is a part of ourselves, a part of our DNA. How is this generation going to protect us from a new onslaught? *Vultures Gate*, a fictional tale by Kirsty Murray is a story of our future in which there are no females. They have been destroyed by avian influenza in this post plague world. This module is a look at our history both biologically and artistically and a glimpse into our future through our new knowledge of scientific technology and the fictional writings of one individual.

Rational

My students are visual artist and writers, musicians and graphic designers. They may march to a different drummer but they as a whole are dedicated to their craft and open to differences in others. Not every violinist becomes first chair but they might become a very capable surgeon. It is my job to open their minds to possibilities.

Description of teaching unit

- I. **History of Plagues:** Historical description of the seven plagues to include the art which was created during each. Use of Dr. Marco Salemi's notes.
 - Historical:** Edward Jenner, his experiment with cow pox, May 14, 1796, inoculation of 8 year old James Phipps.
 - Present:** Dr. Johnson's cholera notes and Medical Mystery of Epidemic Proportions
- II. **The Causes of a Plague:** A unit on bacteria and virus pathogens and their vectors.

Power Point Projects. Students will chose a Giant microbe from an “infected” bag and do their project on that “microbe”. Each student will take notes on the presentation and will be given a test over the information from each project. The participants will turn in five questions from each presentation for the test.

Experiment 1. Searching GenBank – What is my sequence? What did we know about pathogens in the past and how do scientists initiate a Genbank lab on a specific strain of pathogens studied.

III. **Genetic Intervention:** A lesson on the human immune system and how it protects us from pathogens.

Historical: Nursery Rhymes and historic beliefs and cures.

Present: ELISA Lab simulation (if time will incorporate)

IV. **Scientific Intervention:** A study of scientist and their research into pathogens.

Present: The students will read the book *Vultures Gate* by Kirsty Murray. What biotechnology is still available in this post plague society?

Carolina Biological “Outbreak”. Compare the Rift Valley Fever to the Avian Influenza that caused all female fetuses to abort in *Vultures Gate*.

Literature cited

S. Stephens, *The Old Homestead* (London, 1855), 215–6 "Then the little girls began to seek their own amusements. They played 'hide and seek,' 'ring, ring a rosy,' and a thousand wild and pretty games". The first lines of the motto to the chapter may allude to the same rhyme (p. 213) "A ring – a ring of roses, Laps full of posies."

Iona and Peter Opie, *The Oxford Dictionary of Nursery Rhymes* (Oxford: OUP, 1951), 364–5.

"Cholera's seven pandemics". CBC News. December 2, 2008.

R. Totaro, *Suffering in Paradise: The Bubonic Plague in English Literature from More to Milton* (Pittsburgh: Duquesne University Press, 2005), p. 26.

Geographical: the monthly magazine of the Royal Geographical Society, Volume 63, April 1991, p. 19, Plague doctors of the 14th century wore disctintive bird-like masks and were known as beak doctors.

Budget

For three classes of Honors Biology students. Each contains 4 students at 6 tables.

www.sciencetakeout.com

Medical Mystery of Epidemic Proportions	226.80
Carolina Biological	
<u>Outbreak Lab</u>	165.00
<i>Vultures Gate</i> by Kirsty Murray	6.00
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	397.80

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They died by the hundreds, both day and night, and all were thrown in ... ditches and covered with earth. And as soon as those ditches were filled, more were dug. And I, Agnolo di Tura ... buried my five children with my own hands ... And so many died that all believed it was the end of the world.

—The Plague in Siena: An Italian Chronicle

Benchmarks:

S.C.912.L.15.1 Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.

SC.912.L.16.10 Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.

HE.912.C.1.4 Analyze how heredity and family history can impact personal health.

SC.912.L.14.6 Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.

Day 1: History of Plagues

50 minutes

The first day of instruction will include a PowerPoint presentation on the historical description of the seven plagues. This will include examples of art created during the plagues. Dr. Marco Salemi's notes will be incorporated into the presentation. Also included will be a discussion of Edward Jenner and his experiment with cow pox and Dr. Johnson's cholera notes.

After the presentation the students will be given a copy of the lab, **Medical Mystery of Epidemic Proportions**. The lab and lab safety will be discussed.

Day 2: History of Plagues

90 minutes

Medical Mystery of Epidemic Proportions

Students will explore a case study on cholera epidemic and conduct a laboratory experiment. Lab to be completed and turned in the following Friday.

Day 3: The Causes of a Plague

90 minutes

Computer Lab Day – cart computers will be used in the classroom.

Opening Activity: Students will choose a Giant microbe from an "infected" bag. They will be asked to present a power point presentation on that "microbe" during the two weeks of FCAT testing. Each student is to observe the presentations and take notes. The test over the presentations will come from questions written by each student.

After the opening activity students will be given instructions for the following lab.

Lab: Searching GenBank – What is my sequence?

If the lab and discussion is complete before the 90 minute period is complete students will start their microbe research.

Day 4: Genetic Intervention

50 minutes

Opening Activity: Read a collection of nursery rhymes. Discuss their relevance to the plagues.

Notes: Use ADAM program to present information on the human immune system and how it protects us from pathogens.

Day 5: Scientific Intervention

90 minutes

Notes: A PowerPoint presentation of scientist and their research into pathogens will be given. This will include scientist from the University of Florida and others of historical significance.

Lab: Carolina Biological “Outbreak”

Day 6: Scientific Intervention

90 minutes

The students will have been assigned the book *Vultures Gate* by Kirsty Murray at the beginning of the semester. They will be given a study guide to aid in their reading of the book. There will be a discussion of the book in the beginning of the period. It is to be followed by a test covering the material discussed in the unit “Ring Around the Rosie”.