A. Read the following text about the History of Smallpox Vaccine. Choose True or False

Cowpox and smallpox viruses belong to the family of Poxviruses, which are the largest and most complex viruses known so far. They are double-stranded DNA viruses of 130-300 kilobase pair. Smallpox is also known by the Latin name 'Variola', derived from "varus", which means pimple or pox, named after the characteristic umbilicated pimples filled with pus that form on people's faces, limbs and torsos. It is this Latin name that gave the name to "variolation" used to describe inoculation of smallpox virus.

The Cowpox virus was subsequently used and gave birth to "vaccination." The virus used in the modern vaccine is called the Vaccinia virus, from the Latin term "vaca," meaning cow. Vaccinia virus is a big mystery in virology. It is not known whether Vaccinia virus is the product of genetic recombination, or if it is a species derived from Cowpox virus or Variola virus by prolonged serial passage in the laboratory. It is this Latin term however that gave the name to "vaccination," which was subsequently employed as a generic term for defining the use of an attenuated or killed pathogen inoculated in humans in order to develop an immune response against that pathogen.

1. Poxviruses are the largest and most complex viruses known so far.
2. Cowpox is also known by the Latin name Variola, derived from "varus".
3. The word variolation is used to describe inoculation of smallpox virus.
4. The Cowpox virus gave birth to what we nowadays know as vaccination.
5. It is certain that the Vaccinia virus is a product of genetic recombination.

B. Which paragraph (1, 2 3 or 4) talks about...

a) Examples of Smallpox used as a weapon. ____
b) The author´s concern about a bioterrorist attack. _____
c) A development which allowed worldwide vaccine distribution. _____
d) A prediction about the eradication of Smallpox. ____

Dr. Matthew Maty (1718-1776), a Dutch physician who later worked as the principal librarian of the British Museum in London, foresaw the eradication of smallpox in his book "The Advantages of Early Inoculation" in 1767. Eradication of smallpox became possible after the endorsement of vaccination and mass production of the vaccine.

In 1864 the use of animal lymph reduced transmission of human diseases, such as syphilis, and helped increase the production of the vaccine. Dr. Leslie Collier developed a freeze-drying method in the late 1940's. Collier added a key component, peptone, to the process. This addition protected the virus, making it practical to distribute the vaccine worldwide. In 1965, Dr. Benjamin Rubin patented the bifurcated needle, which allowed using less material for the vaccination.

In 1967, the World Health Organization launched the Intensified Smallpox Eradication Program, which led to the disappearance of smallpox. Smallpox has been used as a war weapon in the past. Infected people would be sent among soldiers to decimate them, as it happened in 1776 in Quebec or during George Washington's siege of Boston in 1775.

Smallpox is not circulating anymore, but a few vials of the virus are kept in highly sophisticated and protected BSL4 (biosafety level 4) laboratories at US Centers for Disease Control and Prevention (CDC) in Atlanta, United States and the State Research Center of Virology and Biotechnology VECTOR in Kosovo, Russia. Should they be destroyed or not? Is there a risk for bioterrorist attack? This controversy is subject for another chapter!

LIVEWORKSHEETS