

Name: _____

Date: _____

Period: _____

Weekly Reading HW

HW Wk _____

Directions: Read and annotate the passage below. Then answer the questions.

Changing View on Viruses: Not So Small After All

There was a time not that long ago when it was easy to tell the difference between viruses and the rest of life. Most obviously, viruses were tiny and genetically simple. The influenza virus, for example, measures about 100 nanometers across, and has just 13 genes. However, those two standards, now belong in the trash. Over the past decade, scientists have discovered a vast menagerie of viruses that are far bigger and carry enormous numbers of genes. French researchers have now discovered the biggest virus yet – the pandoravirus. It is 1,000 times bigger than the flu virus by volume and has 2,556 genes. What makes the discovery even more startling is that only 6% of pandoravirus genes are known to science.

It was the very giant-ness of giant viruses that allowed them to be overlooked for so long. Scientists first discovered viruses in the late 1800s when they were puzzled by a disease that affected tobacco plants. In the 1930s, the invention of powerful microscopes finally allowed scientists to see viruses. They found that viruses were unlike ordinary cells because they didn't harness their own energy and they didn't grow or divide. Instead, viruses invaded and hijacked cells to make new copies of themselves. Being small and simple seemed necessary to allow them to reproduce quickly.

In 2003 a team of French researchers discovered the first giant virus. Eventually they realized that they were looking at a monstrously oversized virus, containing 979 genes. Those first giant viruses were isolated from infected amoeba (single-celled animals) living in water. Once scientists realized that viruses could be so large, they started finding other species in all manner of places, from swamps to rivers to contact lens fluid. And along the way the viruses got bigger. In 2011, Dr. Claverie and his colleagues set a new record with megaviruses, a type of giant virus with 1,120 genes they discovered in seawater. They then dug into the sediment below that seawater and discovered pandoraviruses, with more than twice as many genes.

The new study also shows that giant viruses are far from rare. Shortly after discovering pandoraviruses in sea floor sediment, Dr. Claverie and his colleagues found them in water from a lake in Australia, 10,000 miles away. Giant viruses may be so common, in fact, that they may be hiding inside of us, too. In another study, researchers found a giant virus from blood donated by a healthy volunteer, and then found other signs of the virus in four other donors. Giant viruses may lurk harmlessly in our bodies, invading the amoeba that live within us. Whether they can make us sick is an open question. "I don't believe we have the proof at the moment that these viruses could infect humans," said Dr. Claverie. "But again," he added, "never say never."

1. (RST.9-10.2) Overall, the author in this passage is trying to explain:
 - a. Pandoraviruses are only found in strange places, like sea floor sediment.
 - b. Viruses, once thought to be tiny, can, in fact, be extremely large.
 - c. Only pandoraviruses infect amoeba and not humans.
 - d. Humans are now becoming infected by extremely large viruses.

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2. (RST.9-10.4) As it is used in the passage, the term *menagerie* means:
- a. Characteristic
 - b. Zoo
 - c. Collection
 - d. Lack
3. (RST.9-10.1) The author cites all of following places where megaviruses or pandoraviruses have been found EXCEPT:
- a. Contact lens fluid
 - b. Rivers
 - c. Urine
 - d. Blood
4. (RST.9-10.1) It can reasonably be inferred from the passage that one of the reasons why scientists did not find megaviruses or pandoraviruses sooner is because:
- a. Scientists did not have powerful enough microscopes to see viruses.
 - b. Scientists did not know to look in the right places, like seawater or sea floor sediment.
 - c. Scientists only recently discovered amoebas, so they just learned about what infects them.
 - d. Scientists were only looking for very small viruses with only a few genes.

5. (RST.9-10.1) Why does the author say that viruses are “unlike ordinary cells”?

6. (RST.9-10.1) How do the discoveries of the megavirus and pandoravirus affect humans?

Adapted from the article, “Changing View on Viruses: Not So Small After All” by Carl Zimmer for The New York Times, on July 18, 2013.