Santa Ana High School Article of the Week #9

*Virus suspected for sharp rise in babies born with small heads in Brazil **(1040L)***

Instructions: READ and ANNOTATE using CLOSE reading strategies.

Step 1: Skim the article using these symbols as you read:
(+) agree, **(-)** disagree, **(*)** important, **(!)** surprising, **(?)** wondering

Step 2: Number the paragraphs. **Read** the article **carefully** and **make notes in the margin**.
Notes should include:

- Comments that show that you **understand** the article. (A summary or statement of the main idea of important sections may serve this purpose.)
- Questions you have that show what you are **wondering** about as you read.
- Notes that differentiate between **fact** and **opinion**.
- Observations about how the **writer's strategies** (organization, word choice, perspective, support) and choices affect the article.

Step 3: A **reread** noting anything you may have missed during the first read.

Student _____Class Period_____

Thousands of Brazilian babies born last year have abnormally small heads and potentially crippling brain damage. There is no known cure for the devastating condition, which is known as **microcephaly**.

In 2015 the country reported nearly 3,000 cases of **microcephaly** — 20 times more than the year before. In the nation's northeast, where most of the cases occurred, government officials have declared a state of emergency. Now international researchers and Brazilian authorities are rushing to help reduce the problem.

The trouble is they are not sure exactly what is causing the phenomenon. They do have one strong suspect, however: a mosquito-borne disease called **Zika** that usually only causes short-term rashes and joint aches. **Zika** is now plaguing the same areas in Brazil.

There is also evidence the virus can cross the placental barrier separating a fetus from a mother's body. In the Brazilian state of Paraiba, **Zika** has been detected inside the wombs of two women with **microcephalic** fetuses.

Investigating How Virus Reproduces

What is more, viruses closely related to **Zika** have the ability to make copies of themselves once they reach the body's central nervous system. Scientists think **Zika** may be able to do that as well. If it can, that would provide some clues to how it causes microcephaly in the first place.
Zika disease, however, has never been known to cause microcephaly before. Typically, microcephaly is caused by one of several things: exposure to toxic substances during pregnancy, genetic abnormalities or diseases during pregnancy such as rubella or herpes.

Then again, scientists know very little about Zika. In fact, until 2007 there were only occasional cases of people infected with the disease since it was first discovered in

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By Scientific American, adapted by Newsela staff on 01.12.16

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1947 in Uganda.

Now, the Zika virus is rapidly spreading. In May, Brazil reported its first case. By December, the virus had made its way into several countries in Central and South America, such as Colombia and Mexico, and even showed up on the island of Puerto Rico.

The rapid spread suggests a change in the Zika virus, one which scientists are trying hard to pinpoint.

A Dangerous Mutation

Researchers know a virus like Zika is capable of mutating — changing its structure. Certain mutations might allow it to travel more easily from one person to another.

Scott Weaver is an expert on mosquito-borne diseases at the University of Texas Medical Branch (UTMB). He believes the Zika virus may have mutated in recent years to have a higher level of viremia, or more virus present in any drop of blood.

Such a mutation would allow Zika to spread at a greater rate. It would increase the chances of a mosquito picking up the virus and passing it on to another person after biting an infected human.

Once inside a woman's body, the mutated virus might also become more likely to cross the placental barrier, simply because it is highly concentrated. Weaver and his team are now studying the virus to pin down just what is going on.

However, that work will not determine if Zika is definitely causing the microcephaly cases. Other researchers at UTMB are working separately to prove a connection. Last month two U.T.M.B. researchers traveled to Brazil, where they helped set up ways to test umbilical cord blood for signs of Zika. The umbilical cord links mother and fetus and is cut at birth.

Following The Antibodies' Trail

Scientists will be for looking for signs of particular antibodies within the cord blood. Antibodies are produced by the body as a defense against harmful viruses. Their structure varies depending on the virus they were created to fight. Antibodies can remain in the body long after a person has gotten over a disease.

Scientists have a big problem, however: The antibodies for Zika virus look very much like those for dengue or yellow fever, two diseases common in Brazil. For that reason, it is hard to tell if the mother of a microcephalic baby was infected with Zika while pregnant or had one of those other diseases in the past.

To get around that problem scientists will look for particular kinds of antibodies called immunoglobulin M, or IgM, antibodies. These only remain in the body for a short time. Their presence would indicate the fetus had been infected recently, and almost certainly by Zika. While the IgM antibodies for dengue look similar, it is very uncommon for fetuses to become infected with dengue.

Research Continues To Find Connection

Even without such testing there is already some evidence of the Zika-microcephaly connection. Zika has reportedly been detected in the blood tissue of one microcephalic baby. In addition, some of the mothers remembered having a rash during pregnancy — a possible symptom of Zika.

However, this information is not enough to prove a connection. Scientists in Brazil are continuing to investigate.

If the new cord blood tests do prove Zika is causing the problem, scientists will rush to develop a Zika vaccine. Such a vaccine would be designed to help the body produce the appropriate antibodies. It could perhaps be developed by adapting a vaccine already used to fight Zika's cousin, dengue.

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Comprehension questions – answers may be in phrases.

1. In the second sentence of the paragraph, the word ***"rushing"*** is most likely used to convey a sense of what?

2. Read the sentence from the section ***"A Dangerous Mutation".***

   Weaver and his team are now studying the virus to ***pin down*** *just what is going on.*

   What does the phrase ***"pin down"*** mean in the sentence?

3. Which paragraph in the section **"Investigating How Virus Reproduces"** introduces the idea that the Zika virus is probably mutating?

Answer each question in one or more complete sentences.

4. Write a short paragraph that explains the central idea of the article. Use at least **two details** from the article to support your response.

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