

“Missing Microbes” NPR Fresh Air Homework Assignment

Name: _____

Listen to the NPR episode of Fresh Air “[Modern Medicine May Not Be Doing Your Microbiome Any Favors](http://www.npr.org/2014/04/14/302899093/modern-medicine-may-not-be-doing-your-microbiome-any-favors)” (<http://www.npr.org/2014/04/14/302899093/modern-medicine-may-not-be-doing-your-microbiome-any-favors>). Then answer the following questions. **I expect very specific, complete answers. Your grade will be based on how complete and correct your answers are.**

1. What is the human microbiome?
2. What are the “modern plagues” that Dr. Blaser is concerned about?
3. How does Dr. Blaser believe that changes to the human microbiome relate to these modern plagues?
(You will need to listen to the entire episode to completely answer this question.)
4. Why are sub-therapeutic levels of antibiotics used in livestock? What does “sub-therapeutic” mean?
5. Specifically how may antibiotics relate to human obesity? Is there any research to support this? Describe.
6. Throughout most of human history, how have babies first been exposed to microbes?
7. How does the mother’s vaginal flora change just prior to birth, and how do the microbes that the baby picks up during birth help it to feed on breast milk?

This assignment is from the [Virtual Microbiology Classroom](http://www.scienceprofonline.com/virtual-micro-main.html) (<http://www.scienceprofonline.com/virtual-micro-main.html>) on the free science education website [Science Prof Online](http://www.scienceprofonline.com) (ScienceProfOnline.com). Visit the website to find more science education resources such as lecture PowerPoints, practice test questions, review questions, science photos, videos and assignments.

8. How does Dr. Blaser think that c-section births are altering a baby's microbiome? How does a baby's microbiome differ depending on whether it was born vaginally versus c-section? What do studies suggest may be some of the long-term effects of c-section birth on the baby's health?
9. Why are women typically given antibiotics before giving birth? What microbe is being targeted? Do all of these women need the antibiotics?
10. There are obviously benefits to the use of antibiotics. These drugs can be life-saving. But what does Dr. Blaser caution might be some of the costs of antibiotic use?
11. What does Dr. Blaser theorize about the relationship between the human microbiome and food allergies?
12. Why is Dr. Blaser especially concerned about antibiotic use in young children, more so than antibiotic use in adults?
13. Dr. Blaser has studied a bacterium called *Helicobacter pylori*, the only type of bacteria known to be able to thrive in the human stomach. Eliminating this organism from the stomach cures stomach ulcers, but there seems to be a consequence to eliminating *H. pylori* from the stomach. Describe.
14. What is Dr. Blaser's opinion about the use of probiotics?
15. What are some of the key things that Dr. Blaser recommends we do to reverse the current threats to the human microbiome?