**Testing antibacterial agents virtual lab**

Visit the site, <http://www.classzone.com/books/hs/ca/sc/bio_07/virtual_labs/virtualLabs.html> and click on “testing antibacterial agents.” Read the lab and answer the following questions as you go along.

1. What is the purpose of the lab?
2. Based on your results, what antibacterial agent was most effective in killing bacteria? How did you know?
3. Based on your results, what antibacterial agent was least effective?
4. Based on your results, can you accurately predict how effective the antibacterial agents used in this investigation will be against different types of bacteria? Explain.
5. What was the purpose of the distilled water-soaked disk?
6. Explain whether or not a quadrant with no disk would serve as a valid control
7. Is mouthwash an antiseptic or a disinfectant? Why?
8. What might be a disadvantage to overusing antibacterial hand soaps?
9. How can you apply the results to everyday life?

Click on <http://learn.genetics.utah.edu/content/microbiome/> and read the section, “Intro to microbes” and “antibiotics”.

**Click on “your microbial friends”,** follow the directions, and then answer the following questions:

1. How are microbial genes helpful? State 2 ways.
2. Which vitamin is made only by bacteria and archae?

**Click on “immunity” and follow the directions**

1. What is the role of gut microbes in immunity?

**Click on “protection from infection” and follow the directions**

1. How do microbes on the skin help protect us from infection?
2. How do resident bacteria prevent vaginal colonization by bacteria, yeast, and viruses?

**Click on “maintenance of protective barriers” and follow the directions**

1. What are the 3 ways microbes maintain protective barriers?

**Click on “organ development” and follow the directions**

1. Why are microbes important in brain development?

**Click on “and more” and follow the directions**

1. How do bacteria affect formate levels?

**Click on “the human microbiome” and then “your changing microbiome.”** Read all stages and then answer the question below

1. Explain how the microbe composition changes with age.

**Click on “the human microbiome” and then “what is an antibiotic?”**

1. Explain how antibiotics help to fight infection. Give an example of an antibiotic for each.
2. Explain one potential negative side effect of antibiotics. What should be done to minimize the effect of this side effect?

**Click on “the human microbiome” and then “antibiotic resistance”**

1. Explain the types of antibiotic resistance.
2. How can you reduce the possibility of antibiotic resistance?

**Click on “the human microbiome” and then “the microbiome and disease”**

1. For each health condition, explain in one sentence how microbes are involved.

**Click on “the human microbiome” and then “examples of symbiosis”.** Follow the directions.

1. The example of the squid is what type of symbiotic relationship?
2. What do the bacteria do to the nitrogen? What are these bacteria called?
3. Evolutionary speaking, how were the fungi helpful to early land plants?
4. How do the bacteria help the *Philanthus triangulum*?
5. What is the name of the bacteria growing on the surface of the ants?
6. How do bacteria help tubeworms?
7. What is the role of the bacteria in nematode worms?
8. How do bacteria help herbivores?

**Click on “the human microbiome” and then “microbiome simulator”**

1. How do antibiotics affect microbe populations?
2. How does fever affect microbe populations?
3. What is the effect of a pathogen on microbe populations?
4. What is the effect of diet on microbe populations?

**Click on “the human microbiome” and then “agent antibiotic”. Play the game. Enjoy!!!**

**Click on** [**http://outreach.mcb.harvard.edu/animations.htm**](http://outreach.mcb.harvard.edu/animations.htm) **and “The Human Microbiome” video. Read and then click on “nasal” then each bacterium**

1. Which bacterium is resistant to antibiotics?
2. How is *S. epidermidis* helpful to the human host?

**Click on “urogenital”**

1. What causes a yeast infection?
2. How does *L. acidophilus* help to maintain homeostasis?

**Click on “gut”**

1. What type of bacteria is *Methanobrevibacter smithii?*
2. Why is it bad to consume too much sugar?

**Click on “skin”**

1. What are facultative anaerobes?
2. How does *S. epidermidis* help to prevent infections?

**Click on “oral”**

1. Which bacterium causes tooth decay?
2. Why is too much sugar in your diet harmful?
3. What is a negative consequence of using too many antibiotics?
4. Write down 2 ways you can help yourself to stay healthy regarding antibiotic use.