

Career Connection:

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Teacher Resource

Suggested Answers to 'Further Learning' Questions:

1. Intestinal bacteria provide several benefits to humans. These include:
 - a. Aiding in our immune system responses
 - b. Protecting us from a variety of pathogens
 - c. Creating vitamins for our benefit
 - d. Aiding in food digestion and providing 10% of our energy needs
2. Intestinal bacterial are beneficial, but they are also necessary for human health because our genome only encodes for a tiny number of enzymes to break apart oligo- and polysaccharides. There are hundreds of bacterial species that use the rest of these carbohydrates as a carbon source.
3. Carbohydrates will be degraded into simpler molecules as illustrated in the diagram. Students should be aware that the addition of water is necessary for this reaction to proceed and for the bond linking the carbohydrate rings to break, usually by the work of bacteria.
4. Scientific research is comparable to the foundation of a house because it is necessary to have thorough, accurate research in order to be able to build upon the discoveries that are made, just as it is important to have a solid foundation for a house. Discoveries can be made when we know more about the inner workings of our intestines, and the microbiome that exists there. Perhaps research in gut microbiome will lead to the development of drugs and therapies to fight diseases or conditions, like diabetes or autism.
5. What we eat directly impacts the types of bacteria in our intestines. Different types of bacteria will interact with each other, with harmful bacteria, and with our own body cells. Our diet will provide either an optimal environment for bacterial survival, or one in which bacteria struggle to survive.

