**Pre-Activity Assessment for "Exploring Microbial Diversity"**

**Instructions:** Select the best answer for each of the following questions to gauge your understanding before beginning the interactive in-class assignment.

1. **Which domain do bacteria belong to?**
   1. Eukarya
   2. Archaea
   3. Bacteria
   4. Prokaryote
2. **What is the primary difference between bacteria and archaea?**
   1. Only bacteria have DNA.
   2. Archaea are typically larger than bacteria.
   3. Bacteria have peptidoglycan in their cell walls, whereas archaea do not.
   4. Archaea can photosynthesize, but bacteria cannot.
3. **Which of the following best describes a chemoautotroph?**
   1. An organism that obtains energy from sunlight and carbon from carbon dioxide.
   2. An organism that obtains both energy and carbon from organic compounds.
   3. An organism that obtains energy from chemical reactions and carbon from carbon dioxide.
   4. An organism that relies on other organisms for energy and carbon.
4. **What is the significance of microbial diversity in ecosystems?**
   1. Microbial diversity is not significant; only a few species are important.
   2. Microbial diversity helps maintain ecological balance and supports various life forms.
   3. Microbial diversity increases competition for resources, leading to ecosystem instability.
   4. Microbial diversity is solely responsible for the spread of diseases in ecosystems.
5. **Which of the following environments could a mesophile most likely thrive in?**
   1. Near hydrothermal vents at the bottom of the ocean
   2. Hot springs with temperatures above 60°C
   3. A human body at normal temperature
   4. Antarctic ice sheets