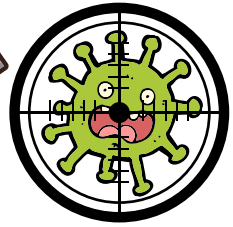
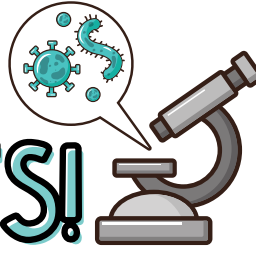




D-BUG FUN FACTS!



GOING VIRAL! MEET THE MICROBES

Microbes are tiny microscopic life forms too small to be seen with the naked eye. They have lived on our planet for 3.5 billion years and they are **EVERYWHERE!**

Adrift in the air, seething in seawater, & skulking in soil they infiltrate our world!

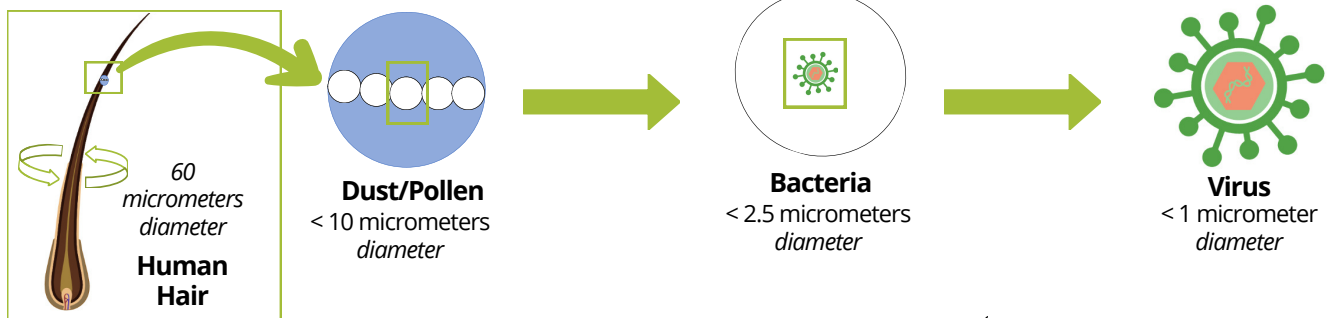
Bacteria, fungi, & **viruses** are types of microbes. Some are good for us, some are harmful. Microbes that cause disease are called **PATHOGENS**.

Around 10 nonillion viruses exist on our planet - that's 1×10^{31} , or
10,000,000,000,000,000,000,000,000,000,000!

SIZING IT UP



Viruses are 10,000 times smaller than a single strand of hair on our head! We need specialised microscopes to see their *morphology* (what they look like).



PACKING A PUNCH!



VIRUSES are parasitic and need to live inside the cells of humans, animals, plants, or other microbes, to survive. These infinitesimal invaders must find a **host** (e.g. a human), and gain entry into a **host's cell**. The virus releases its genetic code into the cell, hijacking the metabolic machinery of the cell to produce copies of itself. Our cells don't realise these genetic instructions aren't our own, and begin copying viral genes and crafting viral proteins. Thousands of virus copies are assembled inside the cell before they burst out to find more cells to infect! This process is called **replication**.

When a virus hijacks our cells, it can make us sick by killing cells or disrupting cell function. Some viral infections cause mild disease, others are deadly serious.