

CONCEPT 1

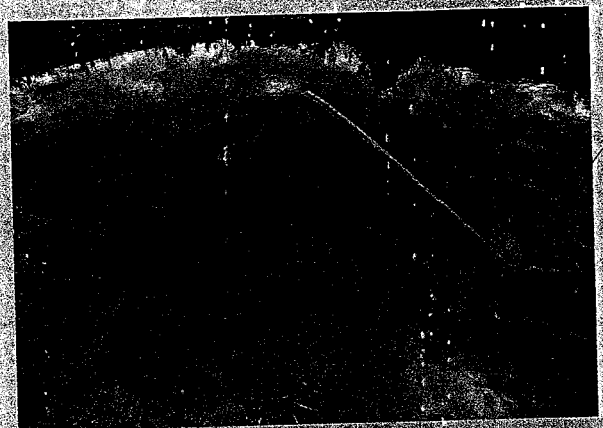
# Bacteria reproduce by binary fission.

**F**rom the surface of your desk, to the inside of our bodies, and in extreme environments of the planet, bacteria are all around us (Figure 1.6). Bacteria are micro-organisms that exist as single prokaryotic cells. Even though you cannot see an individual bacterium, it behaves just like any other living thing. To survive, it must be able to make more of its own kind. It must be able to reproduce. Bacteria reproduce asexually by a process called binary fission, which is discussed on the next page.

Figure 1.6 Bacteria are in, on, and all around us.



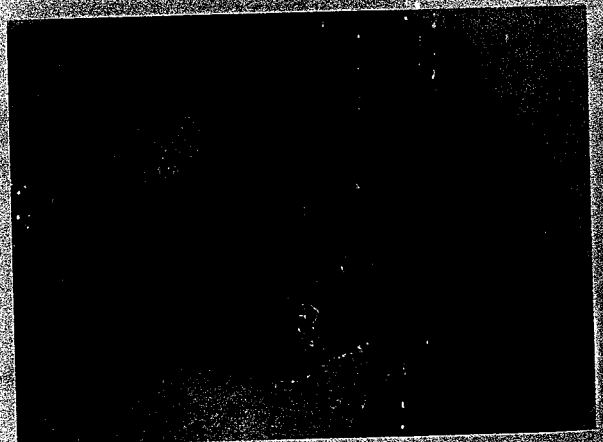
Bacteria are used to make foods such as cheese and yoghurt.



Bacteria can be found in extreme conditions such as Canada's second-largest hot springs near Liard River in northern B.C.



Bacteria can harm health by rotting teeth.

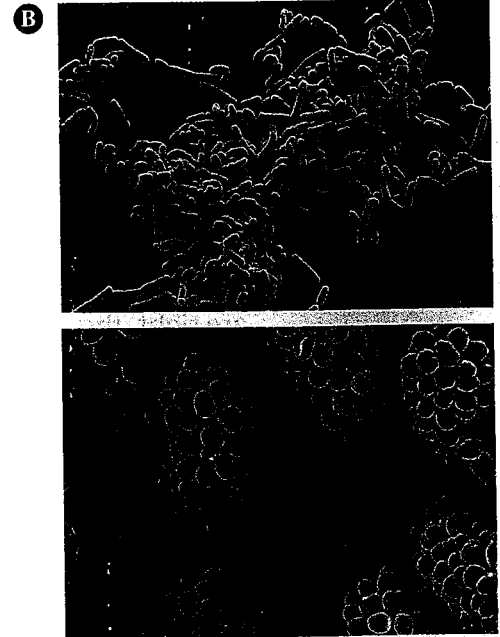
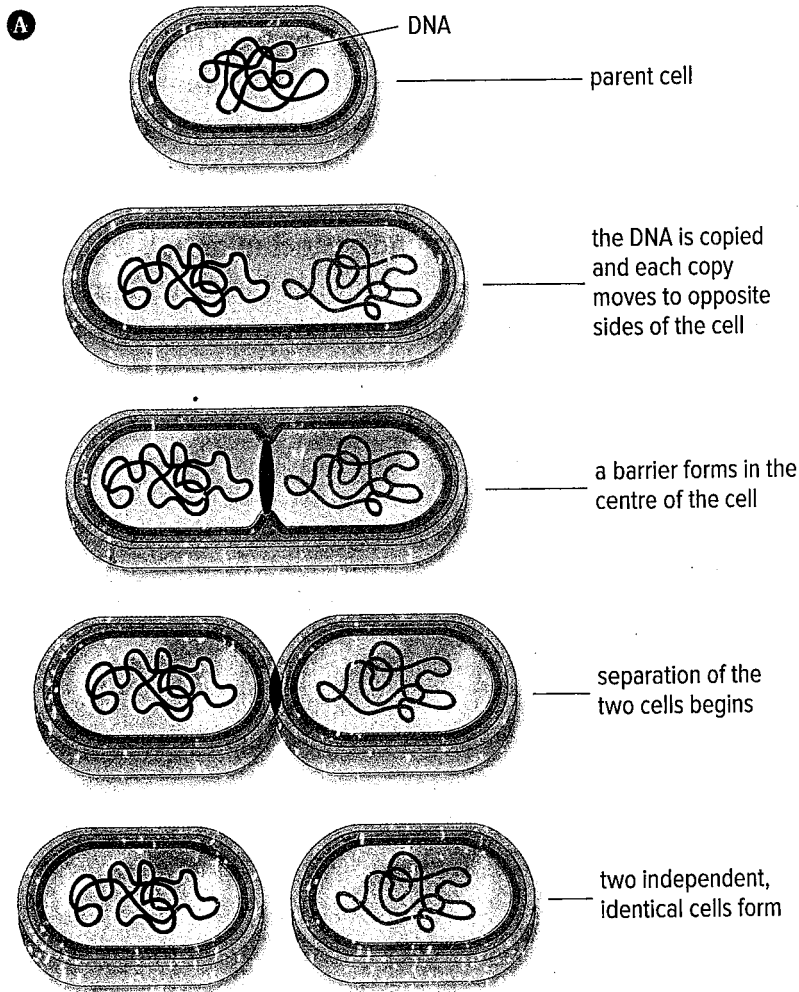


Certain diseases, such as strep throat, are caused by bacteria.

## Reproduction by Binary Fission

Figure 1.7 shows what happens during **binary fission**. In this process, a *parent cell* produces two individual, identical cells. The identical cells that form from the parent cell are called *daughter cells*, and they contain the same DNA. (The term “daughter cells” is a convention that biologists use. It doesn’t mean that the cells are female.)

**binary fission** a type of asexual reproduction in which a cell splits into two daughter cells that have identical genetic information (DNA)



**Figure 1.7** **A** In binary fission, two cells that have identical DNA form from the parent cell. **B** Many types of bacteria are found as clusters or chains.

**Connect to Investigation**  
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### Activity

#### The Power of Doubling

After each cycle of binary fission, the number of cells doubles. The time for many bacteria to double (called *doubling time*) is 20 to 30 min, so a small population can grow quickly to millions under the right conditions. What conditions do you think affect bacterial growth, and how do they affect it?

### Before you leave this page . . .

1. What key piece of evidence tells you that bacteria reproduce asexually?