



Are microbes good or bad?

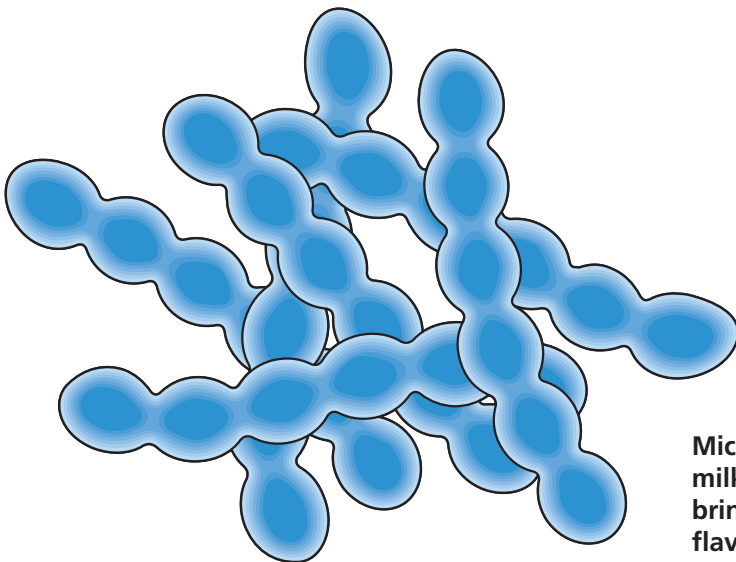
There are far more good microbes than bad ones, so we need to encourage the good ones and keep out the bad ones.

As you have seen, some microbes do immense good, while others do immense harm. Because a few microbes cause very serious illness (such as food poisoning and Aids), some people think that we should try to sterilise everything and wipe out all of the microbes. Would this be wise?

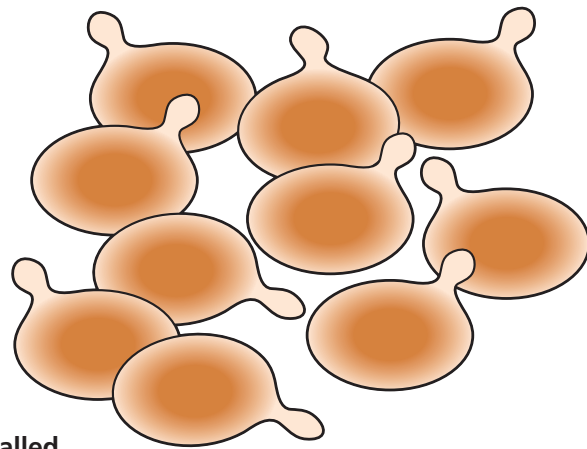
In fact it would be a disaster. This is because many microbes are vital to life on Earth. In fact we would die *without* them!

Here are some of the useful microbes and what they do:

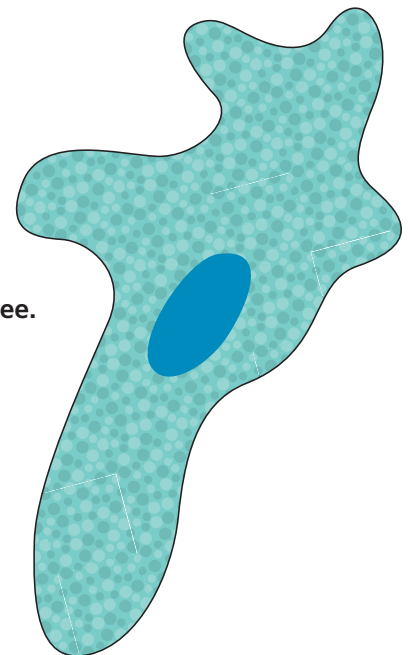
A bacterium called *Lactobacillus* turns milk into yoghurt (look for it on live yoghurt carton labels as part of your healthy diet).



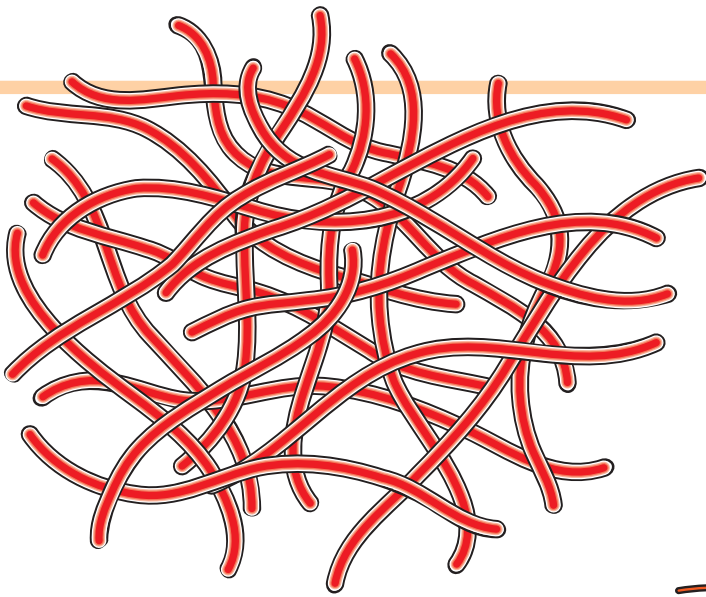
A fungus called 'baker's yeast' makes dough rise. Bread is flat and tougher without it.



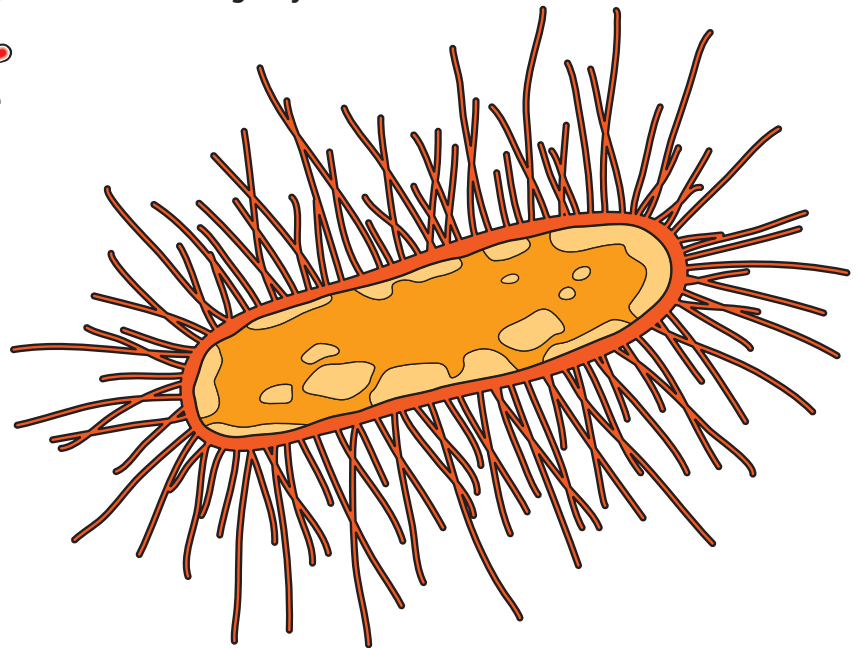
A microbe called *Pseudomonas* cleans up our sewage waste for free.



Microbes make milk curdle and bring out the flavour in cheese.

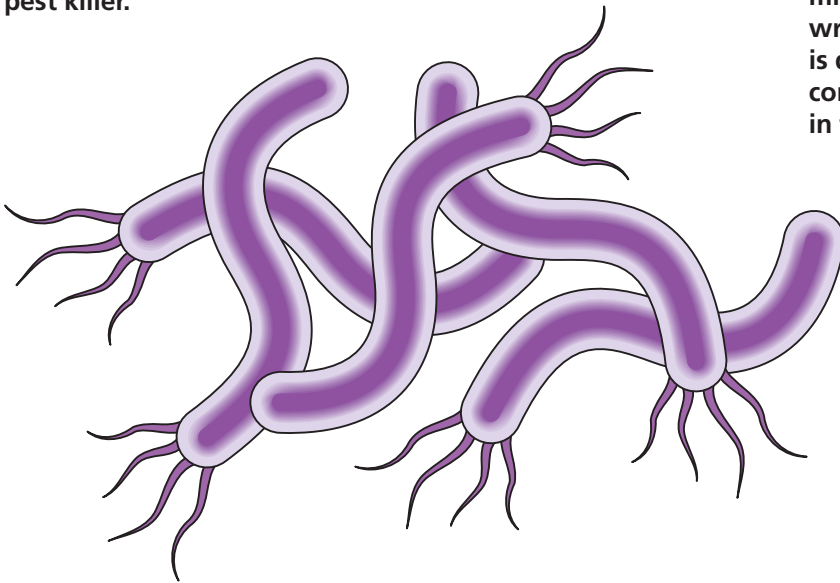


A fungus called *Arbuscular* helps crops take up nutrients from the soil.



A bacterium called *E. coli* lives in your lower gut and helps you to digest your food.

A bacterium in the soil called 'Bt' is a natural pest killer.



Except for viruses (which are always harmful), a microbe is usually only bad when it gets in the wrong place. For example, *E. coli* is fine when it is deep down in your gut, but if you eat it with contaminated food, it gets into the wrong place in the body and causes illness.

Bacteria produce special chemicals called enzymes. We use enzymes to make soy sauce, soda, beer, wine, cheese, chewing gum, to clean our washing (called biological action), to give the stone-washed look on blue jeans, and for many other useful things.

So you don't want to get rid of microbes, you simply want to keep them in their right places.

For microbe buffs:

Arbuscular = *Arbuscular mycorrhizas*
 Baker's yeast = *Saccharomyces cerevisiae*
 Bt = *Bacillus thuringiensis*
E. coli = *Escherichia coli*
 Fungus that produced the first penicillin = *Penicillium notatum*
Lactobacillus in yoghurt = *Lactobacillus acidophilus* and *Lactobacillus bulgaricus*

Summary

- Most microbes are vital to life.
- Microbes only become dangerous when they get into the wrong part of your body.
- Only viruses are always harmful.