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Unicellular organisms



What

you will learn

Unicellular organisms

The spread of infection

AIDS

Unicellular organisms

Unicellular organisms are made up of single cells. These are sometimes called microscopic organisms. Bacteria, viruses and some fungi are examples of unicellular organisms.



✦ Bacteria – the good and the bad

Bacteria are very small and they come in lots of shapes and sizes. If you put about 100 of the largest bacteria in a line, they would just about stretch across this full stop. They can reproduce by simply splitting in half.

People used to think that bacteria are always harmful to them. But only a small proportion of bacteria are harmful. They occur every where and are especially abundant in the soil.

Among the bad ones include bacteria which destroys the lungs, and leprosy which destroys the flesh. They also cause food poisoning. Bacteria cause diseases in other species of animals, and also in plants.

For example, we use bacteria to make cheese, yoghurt, vinegar as well as in treating human sewage. Bacteria help to break down the bodies of dead plants and animals and make the soil fertile too.

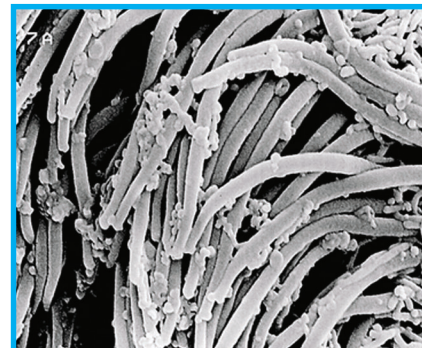


A single sneeze releases millions of viruses into the air for other people to breathe in – and catch your cold!

✦ Viruses – just the bad?

Viruses are incredibly small, about 0.0001mm long. Under a very powerful microscope, viruses are seen as strange shapes made of protein. They reproduce, but only when they are inside the living cell of an animal or plant. Viruses don't respire, move themselves, feed or excrete.

All viruses cause diseases in living organisms. Diseases caused by viruses include colds, flu, Chicken pox, measles, polio and aids.



flu virus

Fungi

Mushrooms, toadstools and mould are all fungi. Some fungi look a bit like plants, but they cannot make their own food. Some fungi feed on dead things, like the remains of plants and animals. Others feed on living things and cause disease.



Tinea (ringworm)

There are several type of fungi which give rise to the various forms of this disease. Different parts of the human body are affected. One type of fungi attack the outer layer of the skin and form a ring like patch on the skin. ('ringworm'). One kind affects the scalp and makes circular bold patches. The other type affect the feet causing cracks between the toes. This is known as 'athlete's foot'.



- 1 Write out these sentences, putting the correct pairs together.

Viruses	chicken-pox, colds and polio
Viruses cause	always cause disease
Bacteria cause disease like	some cause disease.
Many bacteria are useful but	tuberculosis and leprosy.

- 2 List three ways bacteria are useful to us.
3 Name a disease caused by a virus.



Ideas

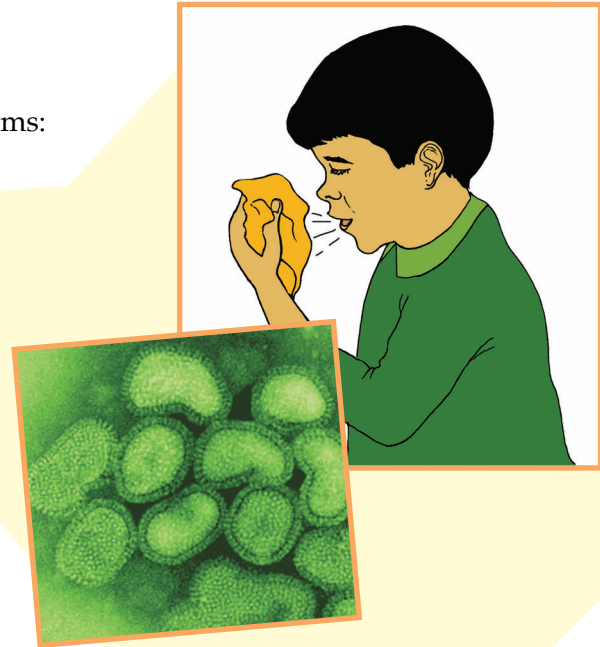
- ⇒ Bacteria, virus and some fungi are micro-organisms.
- ⇒ Some bacteria cause diseases, many are useful.
- ⇒ Viruses are much smaller than bacteria and they all cause diseases.
- ⇒ Fungi are sometimes harmful and sometimes useful.

The spread of infection

These are some of the ways you can be infected with germs:

By breathing in germs from infected people, especially when they cough or sneeze near you. So you should always cover your mouth with a handkerchief when you cough and sneeze. Colds, influenza, pneumonia and whooping cough are spread by coughs and sneezes.

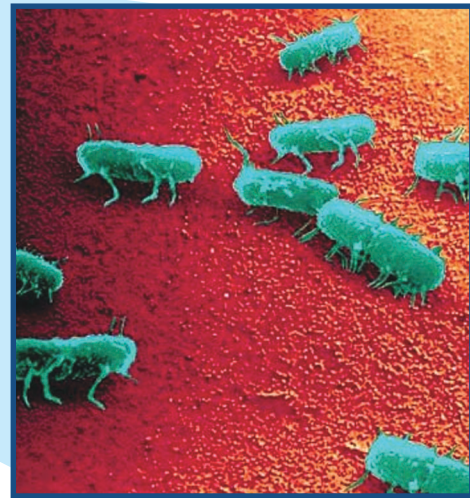
By touching infected people, or things they have used such as towels, combs and plates. Chicken pox and measles are spread by touching infected people.



How does it spread?

From infected food and drink. Food and drink can be infected with germs by coughs and sneezes, dirty hands, flies, mice and pet animals. Infected food and drink cause food poisoning.

By having sexual contact. That means that it is almost always caught by having sexual contact with an infected person. Example, gonorrhoea and syphilis are sexually transmitted diseases.



Do you know?

When you visit a pharmacist, one in every four purchases will have come from a tropical forest.

How can you avoid the infection?

These are some ways you can avoid being infected with germs.

- Keep yourself clean.
- Bathe or shower regularly.
- Clean your teeth twice a day.
- Wash your face regularly
- Wash your hair regularly.
- Change underwear and socks daily.
- Boil water you think may be infected with germs.
- Cook food thoroughly and eat it straight away.

If you have dandruff or lice, use a special shampoo until it clears up.

If you want to store it, keep it in the fridge.



Key Ideas

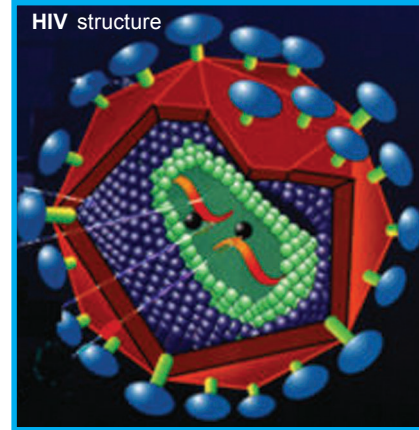
- ⇨ Infectious diseases may be transmitted by air, water, food or contact.
- ⇨ Sexually transmitted diseases are caught by having sexual contact with an infected person.
- ⇨ The infection can be avoided by keeping your self clean.

?

- 1 Name three viral diseases and three bacterial diseases.
- 2 List all the ways germs are being spread in the drawing above.
- 3 Why should you sneeze into a handkerchief?
- 4 Why must you cook food thoroughly?

The initials stand for Acquired Immune Deficiency Syndrome. The virus which causes AIDS is the human immunodeficiency virus (HIV). It attacks certain kind of the white blood cells and weakens the immune system of the body. As a result AIDS patients are open to normally harmless diseases which uninfected people fight off without difficulty.

After a person has been infected years may pass before symptoms develop. So people may carry the virus yet not show any symptoms. Once the symptoms appear, the chance for living for a longer period is very less. Death does not result from the virus itself, but from other diseases like pneumonia, skin cancer or damage to the nervous system etc. which the body cannot fight.

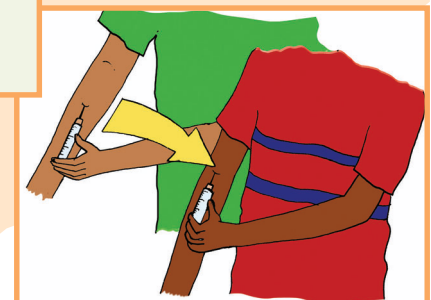


Transmission

Anyone can become infected with HIV, the virus that causes AIDS. It is not who you are ... but what you do that put you at risk for getting HIV.

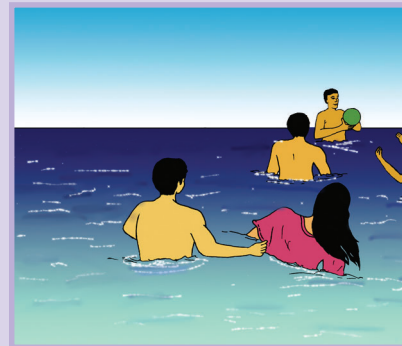
HIV is spread through the **exchange of bodily fluids** with an infected person.

Having sex with an infected person, sharing needles and syringes with an infected person. In some cases, a mother who is infected with HIV may transmit the virus to her infant during pregnancy, birth, or by breast feeding.



✦ You cannot get AIDS

You cannot get AIDS by sharing a home, school or workplace with an infected person. You cannot get AIDS by being with an infected person. Look at these pictures.



- 1 Why is it dangerous to share razors and toothbrush with strangers?
- 2 Why should a first aid worker wear rubber gloves when dealing with patients who are bleeding?
- 3 If a friend became an AIDS patient why would it be unnecessary and wrong to avoid all contact with him or her? Give reasons for your answer.



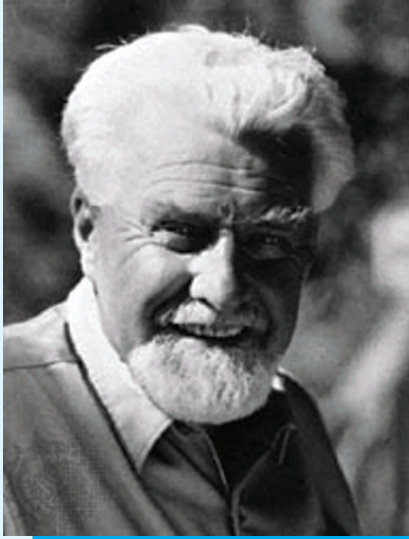
Ideas

→ The virus which causes AIDS is the HIV. The virus attacks the defense system of the body and weakens the system.

→ HIV is transmitted through the exchange of bodily fluids.

KONRAD LORENZ

Born in 1903



Konrad Lorenz was born in Austria in 1903. As a small boy he kept a houseful of all sorts of pets. This love of animals influenced his life's work. He trained as a doctor, but he became interested in how animals behave. Some scientists study animals in the laboratory but Lorenz preferred to observe them outside in their natural surroundings.

Some of his most important work was done with wild geese. He collected and hatched eggs from wild geese. The newly hatched goslings thought that he was their mummy! They followed Lorenz everywhere. If he went shopping in the village then they trailed after him in a line. If he went swimming then they did too. The other villagers were very amused. Lorenz realized that following their mother helped the goslings to survive in the wild. He called the behaviour imprinting.

Lorenz went on to study more complicated animal behaviour. He wrote a lot about courtship behaviour in birds. He explained why courtship always came before mating. He also studied aggression.

Lorenz worked with wild animals but some of his ideas have helped other scientists to understand human behaviour. Konrad Lorenz was awarded a Nobel Prize in 1973.

(J. Boyd & W. WhiteLaw 1989 John Murray)