5 Viruses

Viruses are minute creatures that live inside live cells.

Viruses are not at all like the other microbes. A virus is so tiny that it takes the highest-powered microscope just to see them. They range from 20 to 400 thousandths of a millimetre across! The smallest bacterium is larger than the biggest virus.

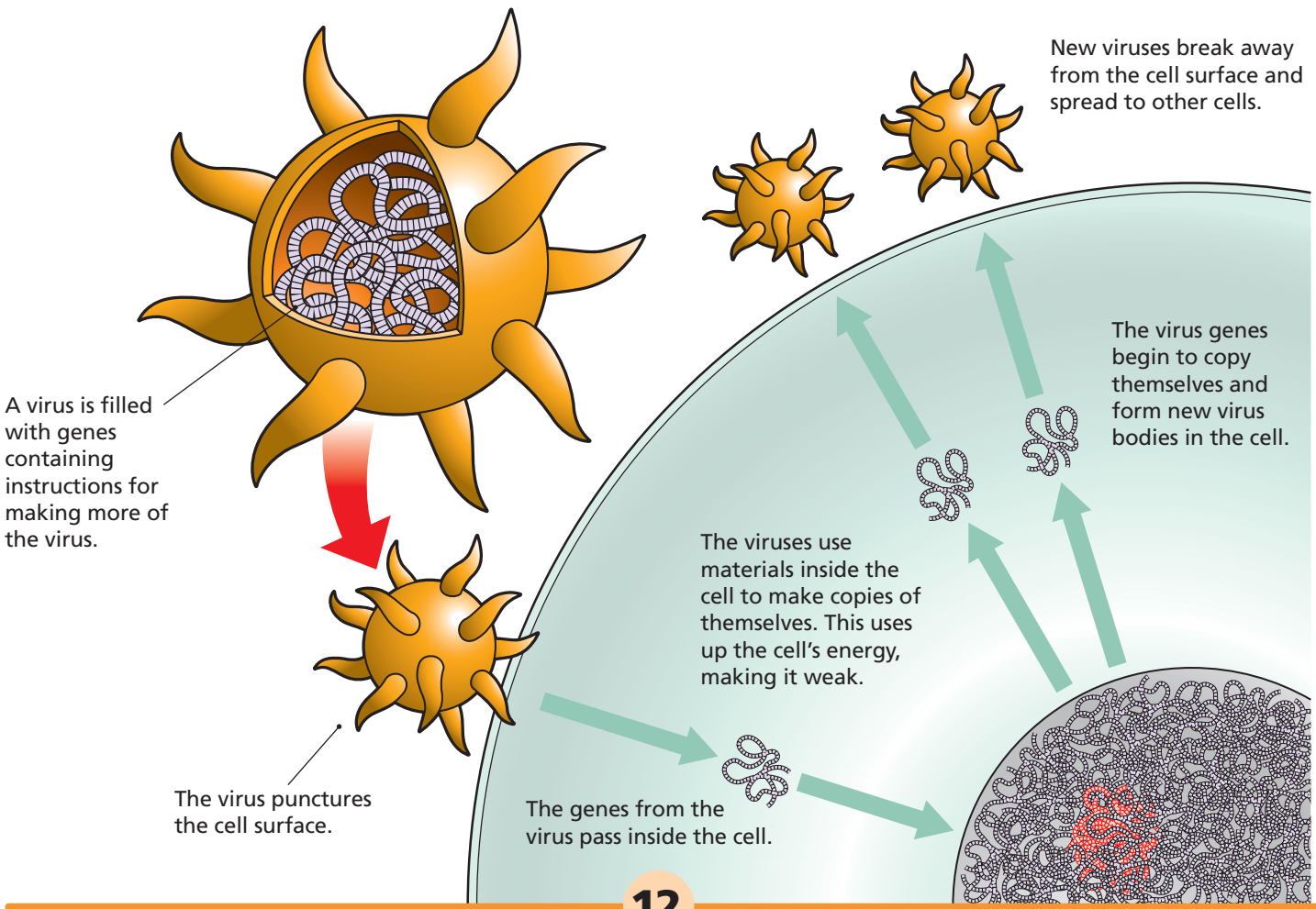
Viruses are alive but they are not cells. They are just bundles of 'instructions' in a type of skin. They are the simplest of all living things.

How viruses live

Because they are not made of complete cells, viruses can only breed if they can get inside a cell of some other creature. As a result, all viruses are **PARASITES** and can be harmful to other creatures.

Viruses get all of their food and energy from the cell they infect. In the process, they damage the cell and so cause disease. The common cold, flu, chickenpox and Aids are among the many diseases caused by viruses.

▼ **(Picture 1) How a virus works.**



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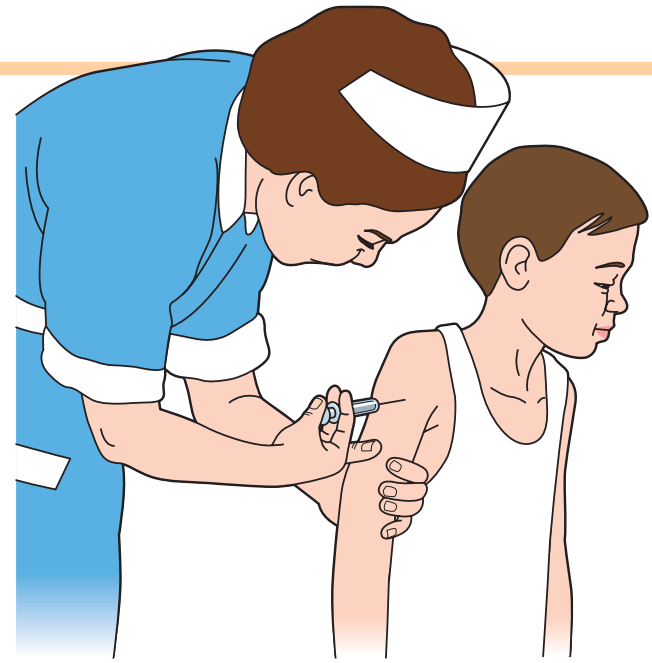

(Picture 2) By our taking a vaccine before we are infected by a virus the body 'learns' how to defend against a future infection by that virus before it can cause illness.
Vaccines are mostly taken as an injection of liquid.

Viruses enter through the walls of a cell, breed and produce new copies (Picture 1). These copies then leave through the walls of the cell and enter nearby cells, where the process is repeated.

How viruses behave

Some viruses live in cells and appear to do no real harm; some kill the cell; others make the cell divide before it dies; yet others cause the cell to grow abnormally. This is what happens with viruses that produce warts.

Depending on what happens, viruses can stay in one area or be carried right around the body.

In many cases a viral infection causes a fever. This is a form of defence, because many viruses stop growing when the body's temperature rises above normal. The body also attacks the virus with a substance called interferon, and makes substances called antibodies that are tailor-made to destroy the virus.

These defences remain in the blood for a long time after the infection and tend to protect the body from being infected again. This is why immunisation works.

Immunisation

To **IMMUNISE** a person against a virus, a weakened or inactivated strain of the virus (called vaccine) is introduced into the body. This weakened virus does not cause a disease to break out, but it does cause the body to produce antibodies which then protect against any later infection (Picture 2). Diseases such as measles, mumps, poliomyelitis and rubella are all prevented by immunisation.

Medicines

There are few medicines that can be used directly to combat an infecting virus. This is because viruses stay inside living cells, and any drug that kills the virus will also kill the cells.

Summary

- **Viruses are simple living things that can invade cells.**
- **Viruses can cause disease.**
- **The body makes antibodies to fight viruses.**

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