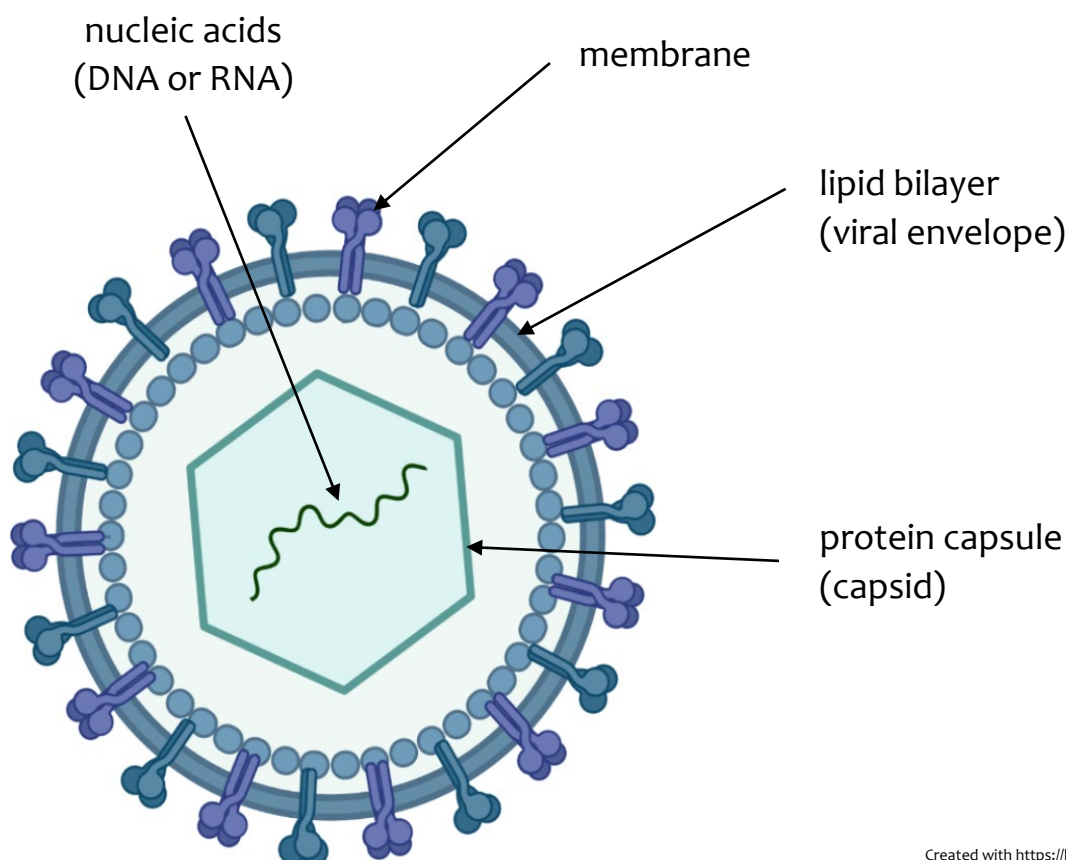


The virus

In this week's Pop-Up Science edition, we are dealing with viruses and how they are structured.

Did you know that about 8% of human genetic information comes from viruses? In our genome, that is about eight parts out of 100 parts. Viruses are the most successful organisms on earth – they have been around for trillions of years and can be found in all kinds of environments, even in the ocean: one cubic meter of ocean water (that is the content of a cube of the size of 1 cm), contains ten million (10,000,000) viruses!

And this how a virus is structured:



**A. Read the following text and underline
the most important pieces of information!**

Viruses are tiny particles which, just like bacteria, can cause diseases in humans and animals. However, the difference between viruses and bacteria is that bacteria are living beings, but viruses are not. Viruses do not have their own metabolism. They cannot survive and reproduce on their own. A virus needs a host cell for reproduction. But what exactly is a host cell?

Imagine the virus is a guest of a healthy body cell. But the problem is that the virus is a very greedy guest and claims the entire cell for itself. It uses all the tools that the cell would need for itself to survive. The virus creates its own "virus production factory" within the host cell,. As a result, there is nothing left for the cell itself! A host cell is, therefore, a body cell that is attacked by viruses and used for their reproduction. The body cell usually dies, and the newly produced viruses are released into the body. They can now migrate further and attack other healthy body cells.

Viruses can cause various diseases. A cold can be caused by a virus, for example. When Luke sneezes, some viruses are emitted from his nose into the air together with droplets of mucus. When his sister Anna breathes in these droplets of mucus through her nose, the viruses stick to Anna's nasal mucous membrane. From there, it is very easy for viruses to enter Anna's body cells and multiply there. And suddenly, not only Luke, but also Anna has a cold!

Did you know that viruses can also be transmitted via the hands? When Luke blows his nose and does not wash his hands afterwards, viruses stick to his hands. If he then reaches for a door buckle and his dad reaches for the same buckle shortly afterwards, it is possible that his dad will also have a cold very soon!

A cold is a disease from which one can recover relatively fast. But there are also very dangerous viruses. Virus infections are particularly dangerous if they attack a new form of host for the first time. Then, the immune system of the host does not know how to fight the virus. This has been the case with the coronavirus. For a while, the virus was only reproducing in some animals; only recently was it transmitted to humans.

Luckily, there are already many vaccinations that protect us against viral infections. Currently, research is being conducted around the world to find a vaccine against the coronavirus, too.

B. Try to answer the following questions.

Check the correct answers.

1. Bacteria are living beings. Viruses are not living beings.

true false

2. Viruses have their own metabolism.

true false

3. If viruses use healthy body cells as "virus production factories ", the cells usually easily survive.

true false

4. A cell that is attacked by a virus and used for its reproduction is called

...

nutrition cell host cell virus cell

5. Viruses can reproduce without a host cell.

true false

6. Viruses can stick to surfaces, such as a door buckle.

true false

C. Word search

Can you discover all the hidden words in our word search this time?

HOST CELL

LIVING BEING

MUCUS DROPLETS

VIRUSES

DNA

LIPID BILAYER

METABOLISM

MEMBRANE PROTEINS

RNA

PATHOGENS

VIRAL ENVELOPE

CAPSID

Circle each word. Good luck!

E	F	C	G	E	N	H	E	U	A	C	A	N	M	L	I	A	Y	O	Z	P	L	I	J	R
A	Q	S	O	R	O	R	K	C	G	I	B	Z	N	A	V	B	G	J	R	V	S	W	C	N
B	I	R	A	O	G	Y	K	L	A	L	H	D	M	O	C	Q	Y	X	N	R	E	W	U	A
A	P	T	P	E	U	N	U	D	A	R	Y	E	W	H	Y	T	T	A	N	H	V	L	F	J
L	Y	M	V	T	L	C	D	S	S	G	P	N	A	T	O	Y	S	K	L	X	U	U	T	E
P	F	J	X	Z	R	Q	F	C	A	S	V	W	N	L	N	X	F	I	P	O	T	M	K	L
V	H	L	Z	F	X	D	T	S	A	D	V	C	V	M	M	Q	N	U	M	D	A	N	F	A
Z	K	H	B	V	N	C	N	I	F	P	N	T	I	J	E	X	R	C	E	D	E	O	Z	A
X	V	T	V	Q	L	Q	X	W	Y	Z	S	R	L	H	L	T	W	H	U	J	D	C	E	J
I	N	I	V	J	G	W	B	Y	E	L	N	I	E	M	I	W	A	A	X	Y	K	H	D	J
S	L	N	C	A	C	K	P	S	L	O	I	S	D	V	V	J	G	B	M	Y	V	S	Z	G
N	Q	G	W	W	F	H	B	E	P	J	E	P	W	O	I	T	E	Y	O	U	K	O	X	Y
E	P	K	A	L	S	O	O	M	O	X	T	E	I	J	N	R	F	Q	F	L	W	Q	L	X
G	Y	M	R	I	A	H	S	S	P	T	O	K	S	D	G	H	U	G	X	O	I	O	Z	L
O	P	U	L	Z	F	V	T	H	T	T	R	H	L	I	B	T	M	S	J	Z	V	S	S	V
H	R	O	U	E	J	U	O	N	C	C	P	O	I	T	E	I	F	T	E	M	U	H	M	I
T	M	U	C	U	S	D	R	O	P	L	E	T	S	D	I	M	L	H	F	S	J	O	V	I
A	Q	C	Q	C	Q	P	F	K	Q	K	N	L	B	J	N	L	X	A	I	U	I	W	F	D
P	N	U	Y	S	C	X	G	H	D	L	A	S	L	H	G	A	Y	Y	Y	H	R	B	I	R
R	N	Y	H	S	J	S	C	Y	C	W	R	K	T	B	O	F	F	R	P	E	T	Q	N	D
S	O	F	W	R	F	I	H	Q	Z	V	B	N	W	M	M	N	L	O	V	K	R	O	O	M
E	H	R	F	J	A	U	J	P	K	Q	M	K	T	T	R	K	Z	Q	T	X	P	J	Y	Y
V	N	J	Z	Z	Z	V	I	R	A	L	E	N	V	E	L	O	P	E	Y	Q	I	D	T	R
F	U	Q	A	K	A	P	M	Y	T	W	M	K	N	D	X	W	H	Z	Y	O	T	C	Y	O
H	A	L	V	G	K	M	L	H	A	C	T	H	O	V	X	C	X	L	E	S	T	B	N	O

D. Color the pictures of the viruses! Have fun!

