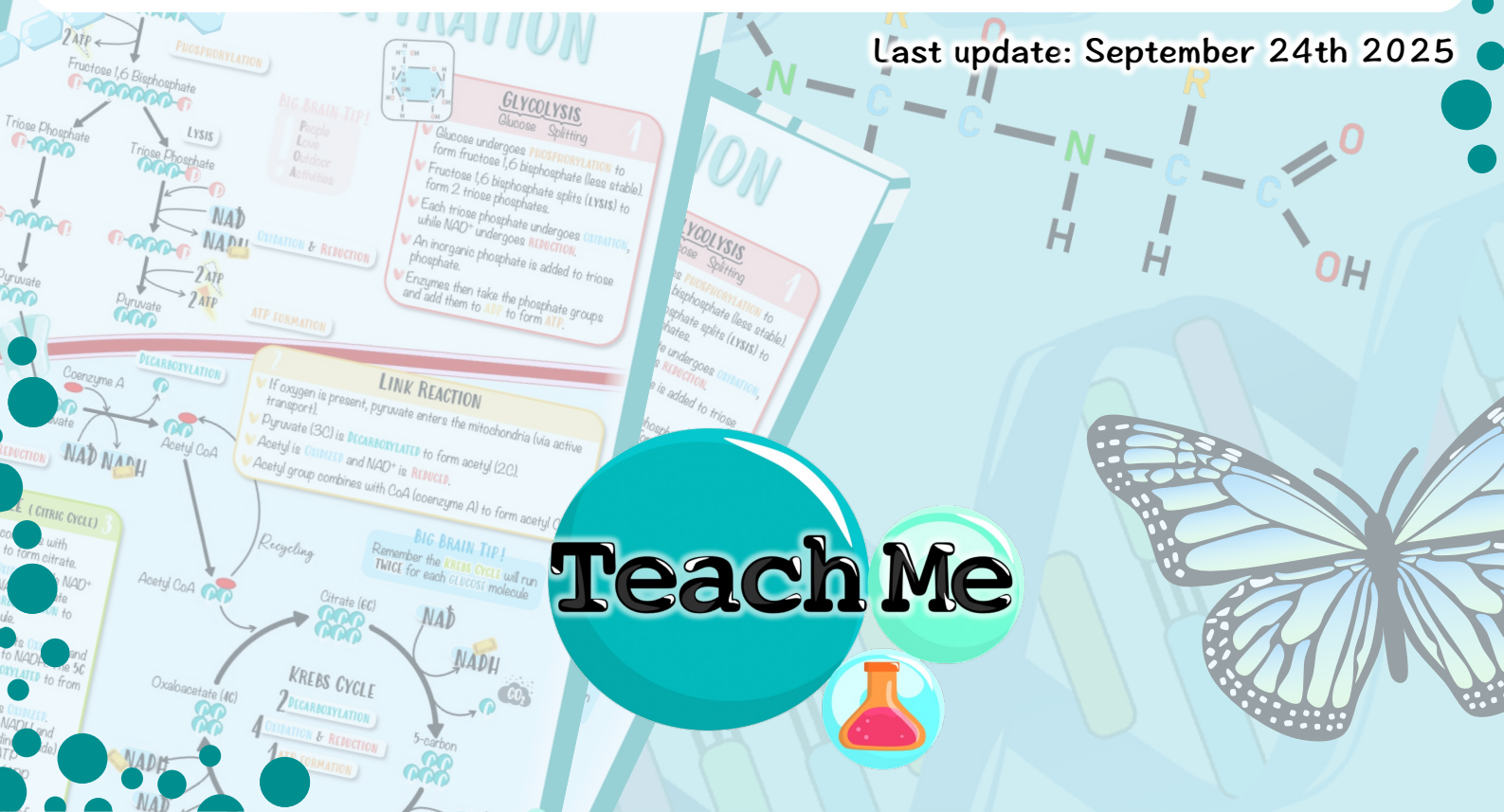


TeachMe

STUDY NOTES

CHAPTER 1 - CELL STRUCTURE VIRUSES

Last update: September 24th 2025



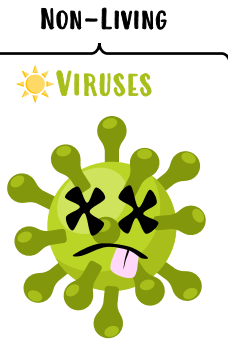
VIRUSES

All living organisms can be categorized as **EUKARYOTIC** or **PROKARYOTIC** like we learned in the previous two sections. But **VIRUSES** are non-living, we therefore classify them separately.

They are **non-cellular** (Non-Living), **infectious particles** that cause disease.

BIG BRAIN TIP!

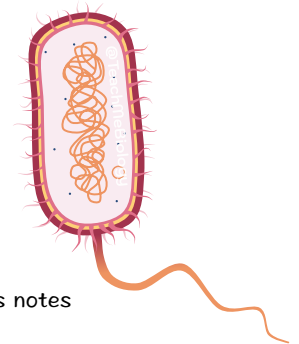
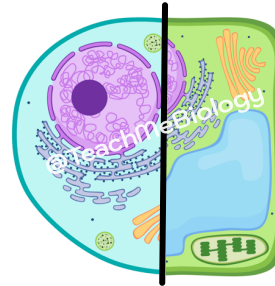
Unlike bacteria, which can be beneficial or harmful, viruses are always harmful to their host.



ALL LIVING ORGANISMS

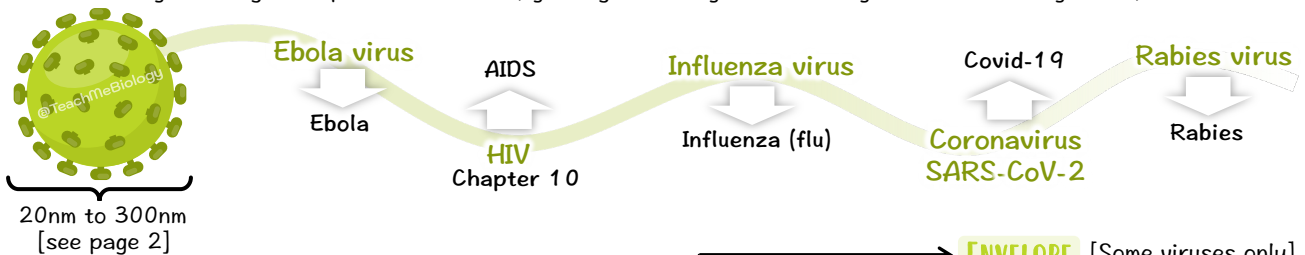
EUKARYOTES

PROKARYOTES



Previous notes

Viruses don't exactly have a good reputation... in fact, you might already know them by the diseases they cause, like these:



CAPSID

- Protective coat made of protein units called **capsomeres**
- Protects viral genetic material

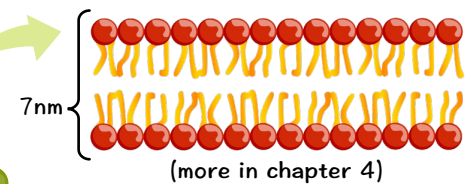
GENETIC MATERIAL

- Can be DNA or RNA (Chapter 18)

Notice how we can **ONLY** observe viruses with an **ELECTRON MICROSCOPE**. So, how **small** are viruses? See page 2.

ENVELOPE [Some viruses only]

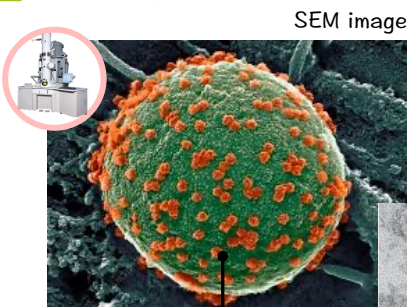
Derived from the host plasma membrane. [see how on page 2]



ENVELOPE PROTEIN [Glycoproteins]

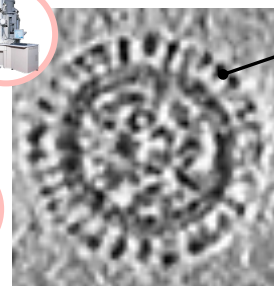
- Proteins embedded in the envelope
- Help with cell entry (virus entering host cell)

IMAGING



VIRAL PARTICLE

HOST CELL



GLYCOPROTEIN

ENVELOPE

CAPSID

VIRAL GENOME



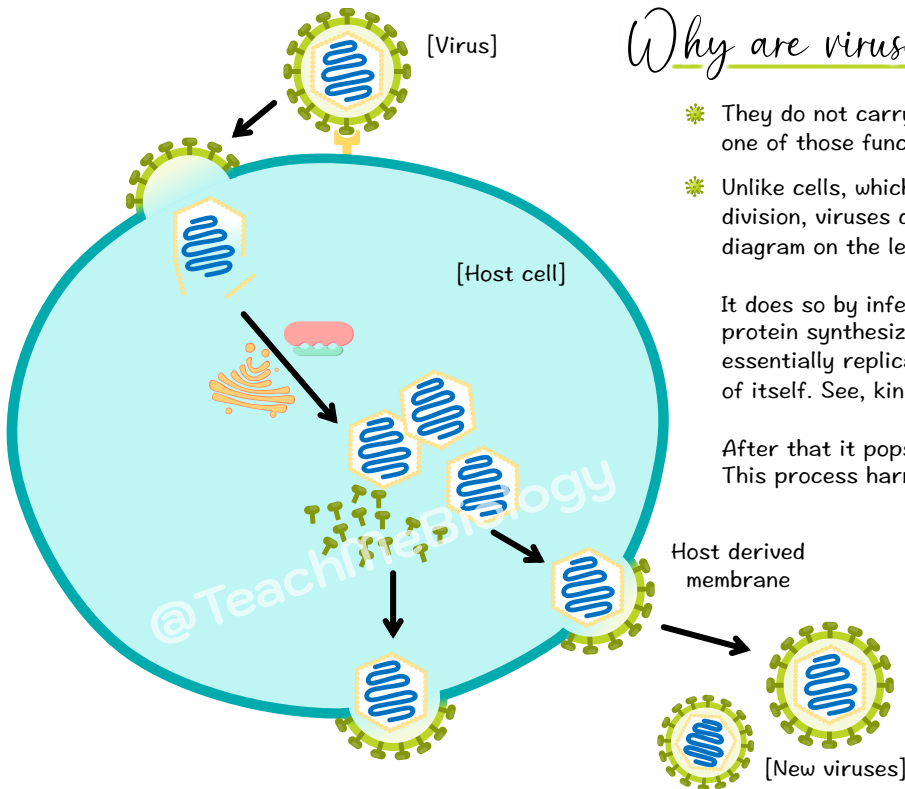
VIRUSES

Why are viruses considered non-living?

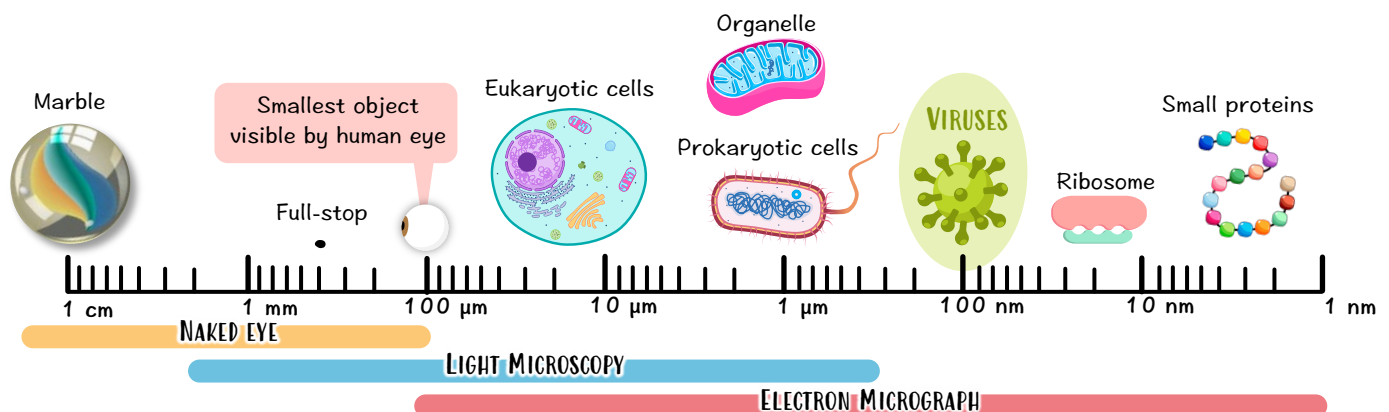
- ✱ They do not carry out the **FUNCTIONS OF LIFE** and one of those functions is reproduction.
- ✱ Unlike cells, which are able to reproduce independently by cell division, viruses depend on a living cell to replicate. See the diagram on the left.

It does so by infecting a host (victim) and taking over its protein synthesizing machinery (that it does not have itself) to essentially replicate its genetic material and create new copies of itself. See, kind of like a thief.

After that it pops off and goes on a search for the next victim. This process harms the host cell and can even kill it. Sad ;(



You might remember this diagram from the first note in chapter 1 when we learned about cells and microscopes.



NOTES

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.