LATIN = POISON

In 1892, Dmitri Iwanowski performed an experiment to try to isolate the cause of a disease that commonly wiped out tobacco crops.

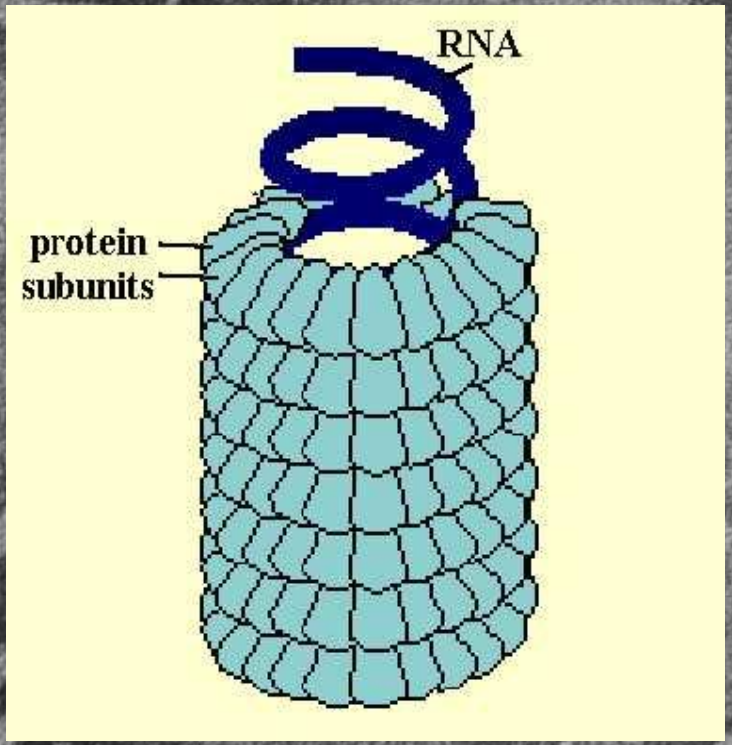
He filtered the sap of diseased plants through a porcelain filter that was designed to trap bacteria.

When healthy plants were injected with the fluid that passed through the filter they became diseased. Whatever the infectious agent was, it passed right through the porcelain filter. It was something much smaller than a bacterium.

It was still a number of years before scientists came to agreement that these very small infectious agents, which were much smaller than most common bacteria, were, in fact, NOT bacteria.

Martinus Beijerinck conducted many viral studies to illustrate the key ways these infectious agents operated differently than bacteria

These very small unseen infectious agents that were the cause of a variety of diseases in plants and animals were classified as VIRUSES.



In 1935, a chemist named Wendell Stanley, isolated the Tobacco Mosaic Virus, making it possible for the first time to carry out chemical and structural studies on the purified virus.

VIRUSES can infect members from all SIX Kingdoms:

ARCHAE

EUBACTERIA

PROTISTA

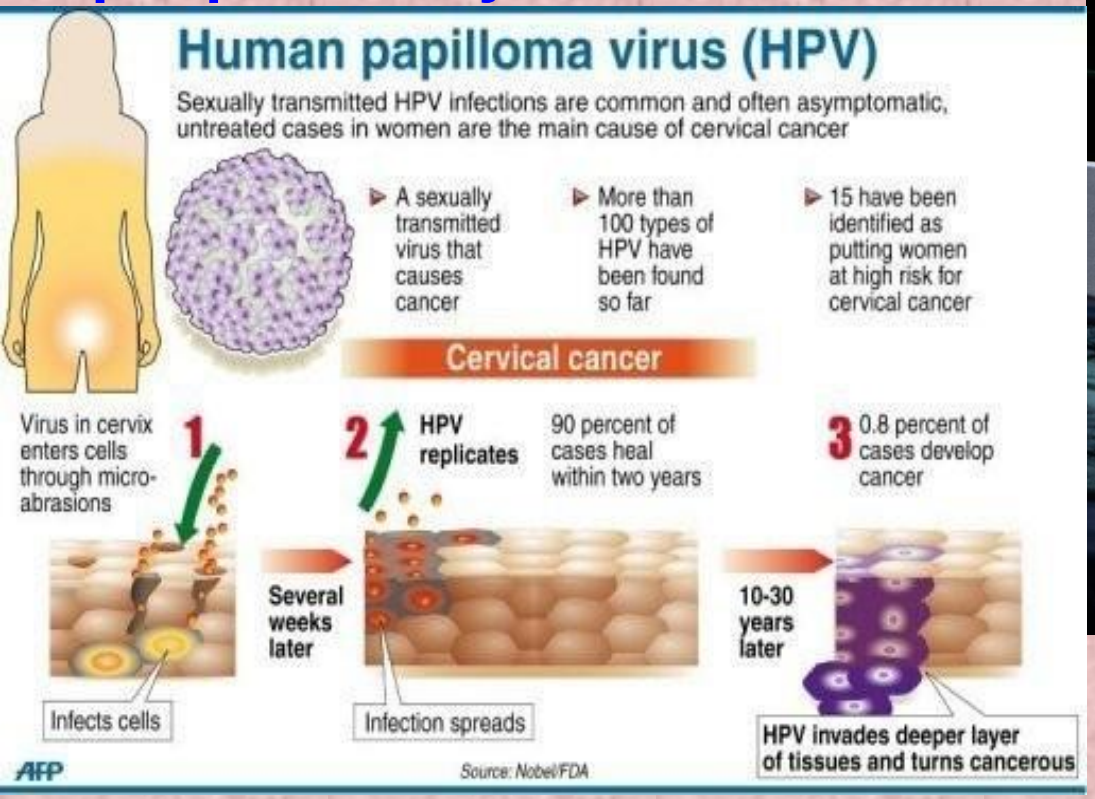
FUNGI

PLANTAE

ANIMALIA

WHY STUDY VIRUSES

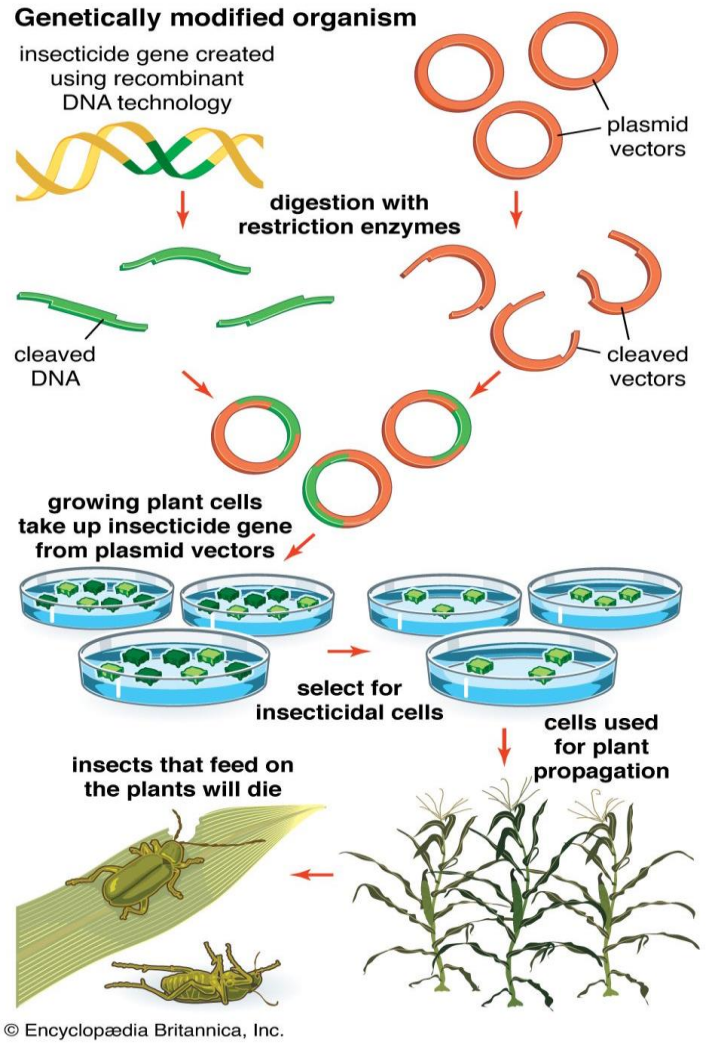
- **Viruses cause the disease and death of millions and millions of people each year.**

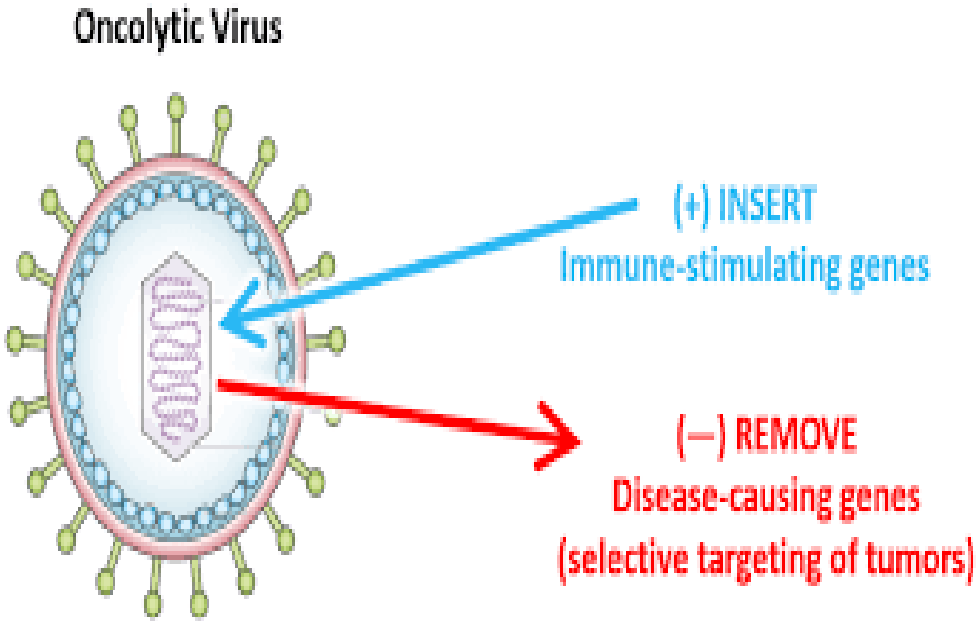


- Recent studies are linking viruses to the cause of about 20% of all cancers. Example HUMAN PAPILLOMA VIRUS

WHY STUDY VIRUSES

- Medically we are using viruses and bacteria for genetic modification of various crops and livestock.





- New cutting-edge cancer treatments include the use of viruses to kill cancerous cells

DO ANY OF THESE SOUND FAMILIAR?

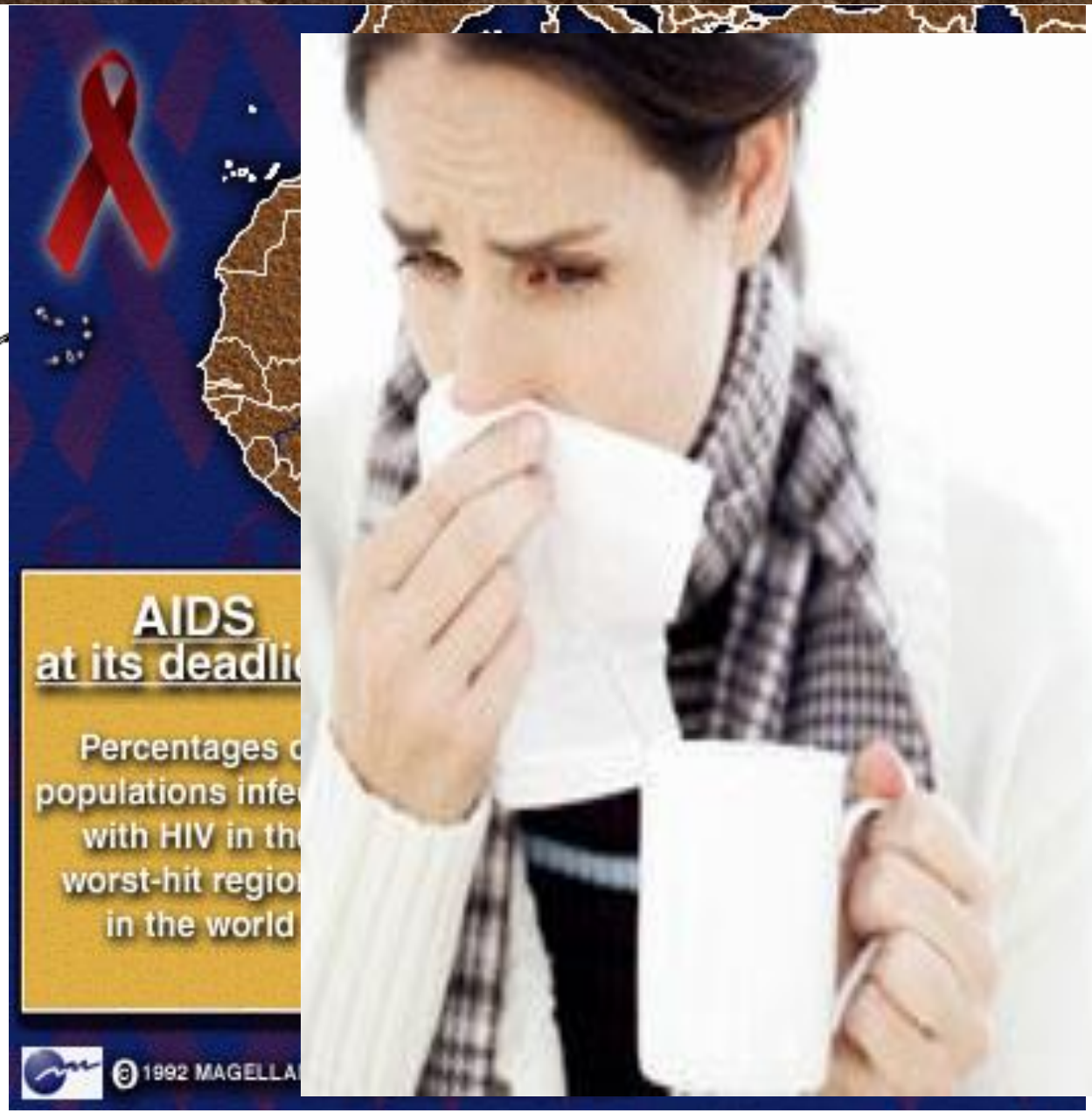
CHICKEN POX

WEST NILE VIR

INFLUENZA

A.I.D.S.

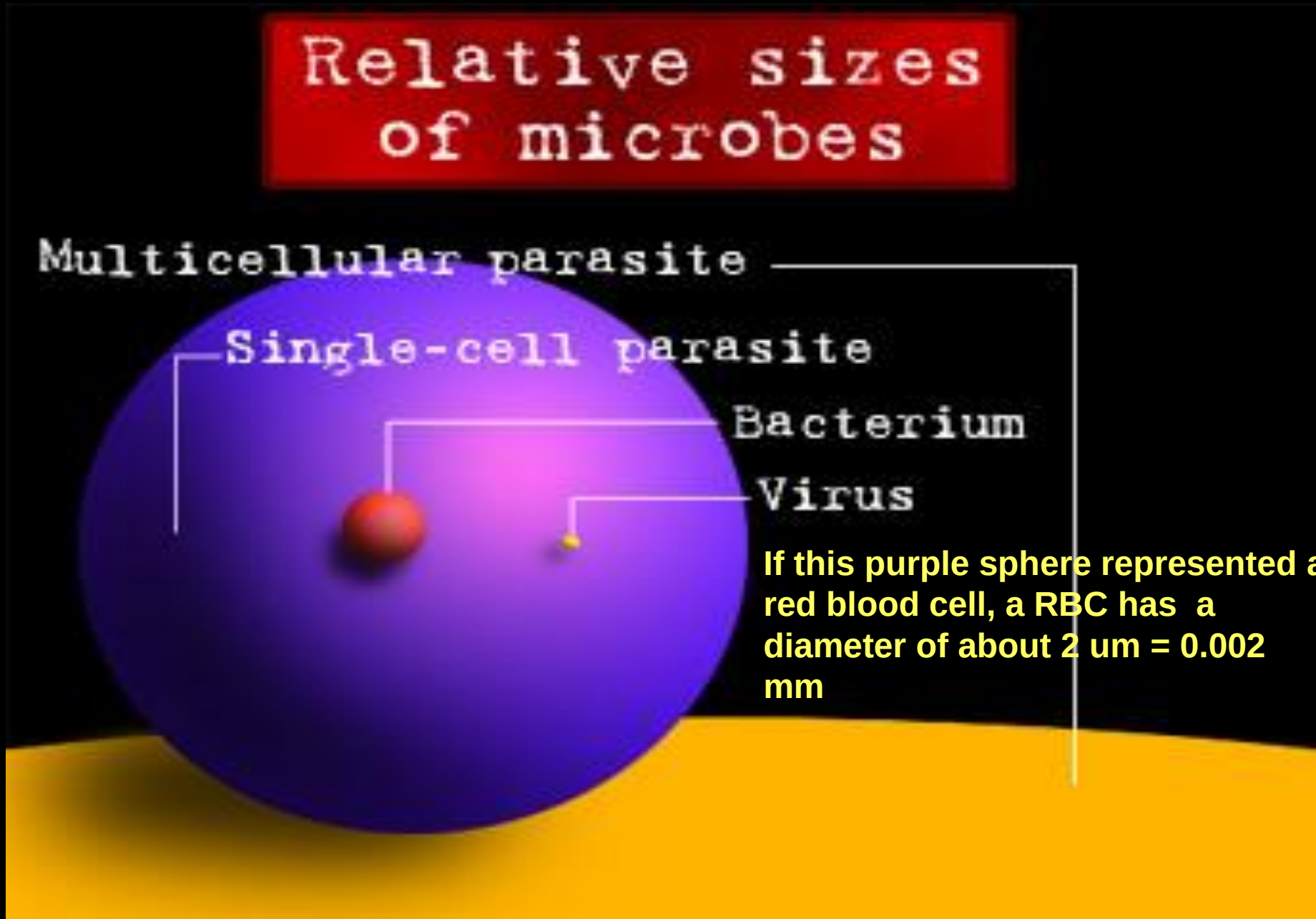
COMMON COLD



HOLD IT!….. SOMEBODY TOLD ME THAT VIRUSES CAN'T EVEN MOVE.

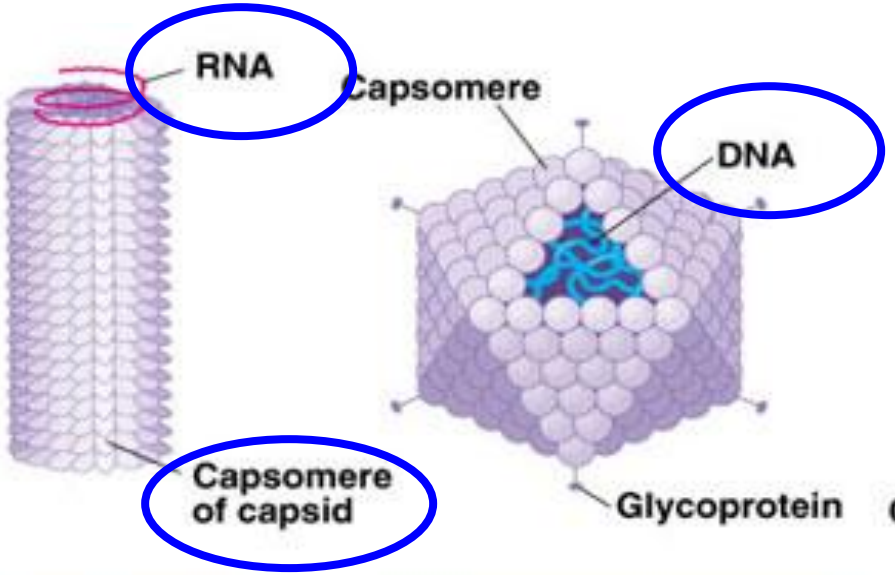
One More Reason To Properly Wash Your Hands Frequently - 80% of Common Infections Are Passed From Your Hands!

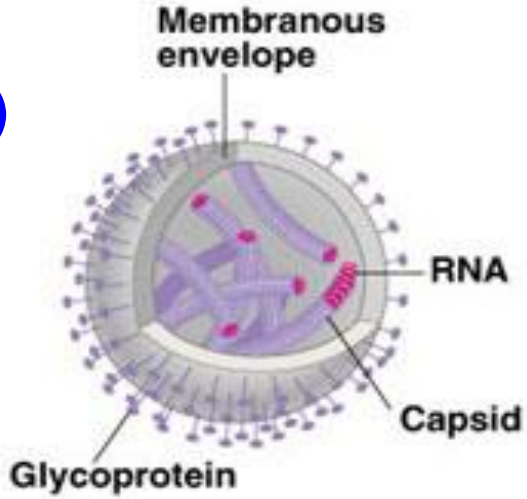
What's SMALLER ? ? ? ?

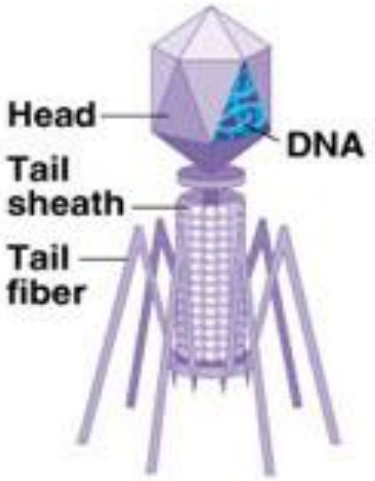


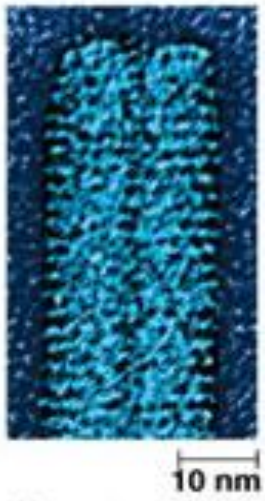
If this purple sphere represented a red blood cell, a RBC has a diameter of about 2 um = 0.002 mm

VIRUS STRUCTURE and Shapes

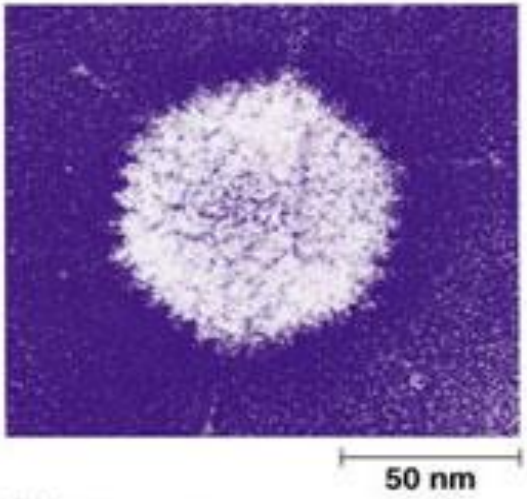




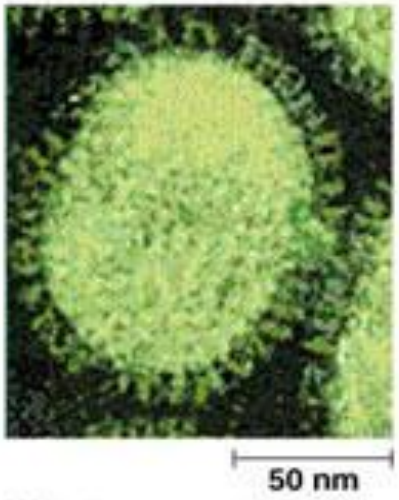




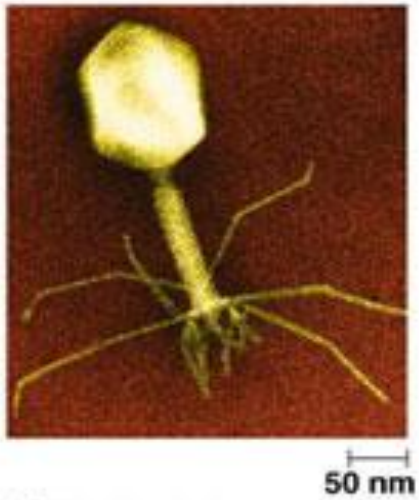
(a) Tobacco mosaic virus



(b) Adenoviruses



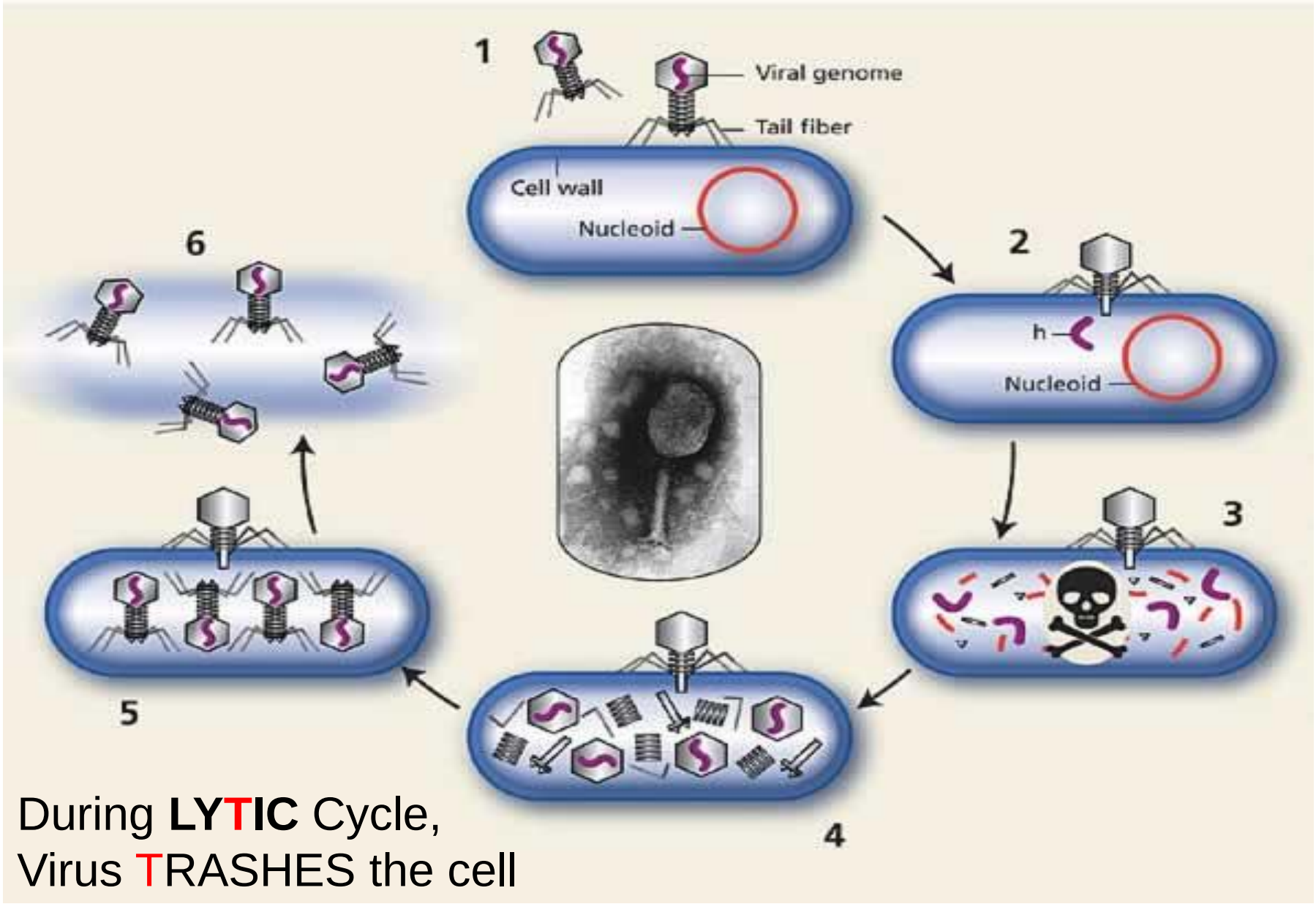
(c) Influenza viruses



(d) Bacteriophage T4

HELICAL POLYHEDRAL SPHERICAL COMPLEX

BACTERIOPHAGE VIRUS – LIFE CYCLE PATTERNS



During **LYTIC** Cycle,
Virus TRASHES the cell

LYSOGENIC PATTERN