

A detailed 3D illustration of a cell membrane, showing various receptors and proteins. A virus particle is visible in the upper right corner. The background is a dark blue gradient. The text is centered over the image.

Are Viruses Beneficial, Harmful or Ineffective?

By Jessica Kalynchuk

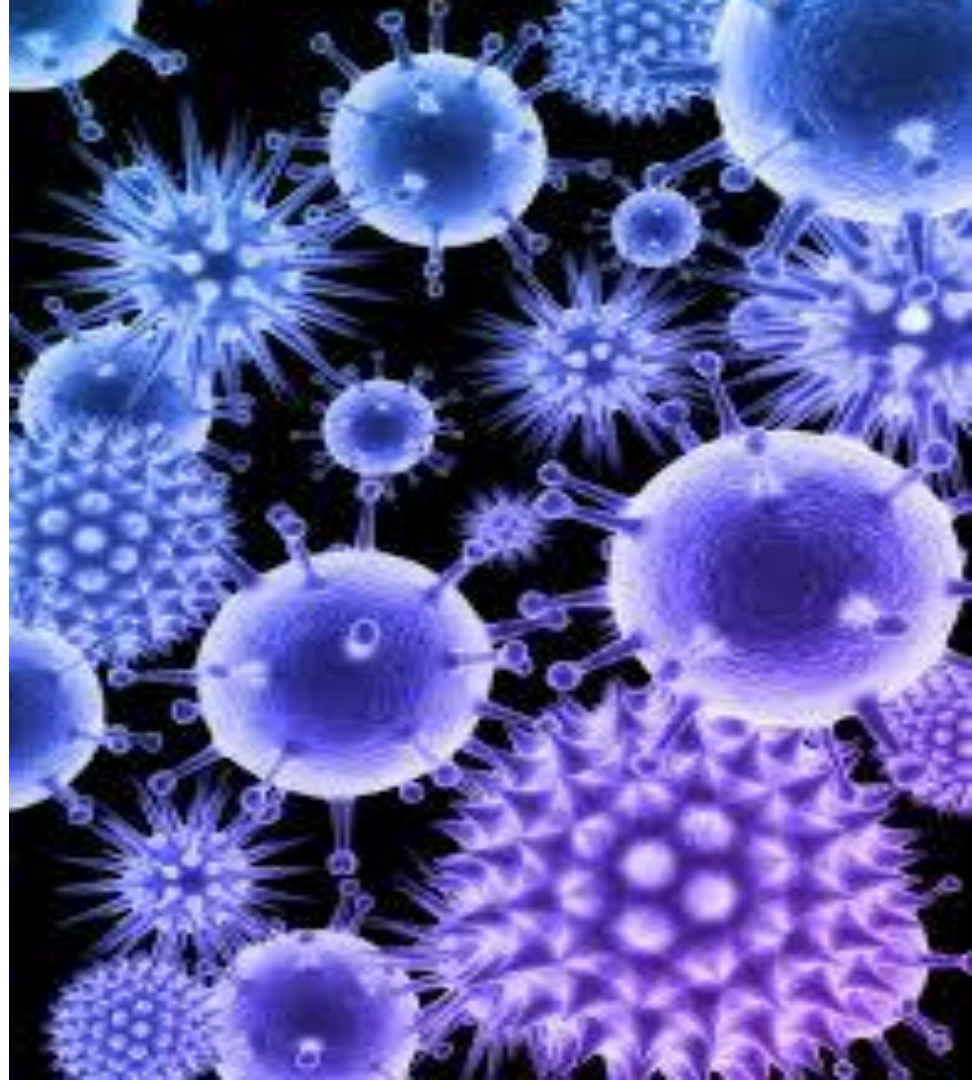
What's your opinion?



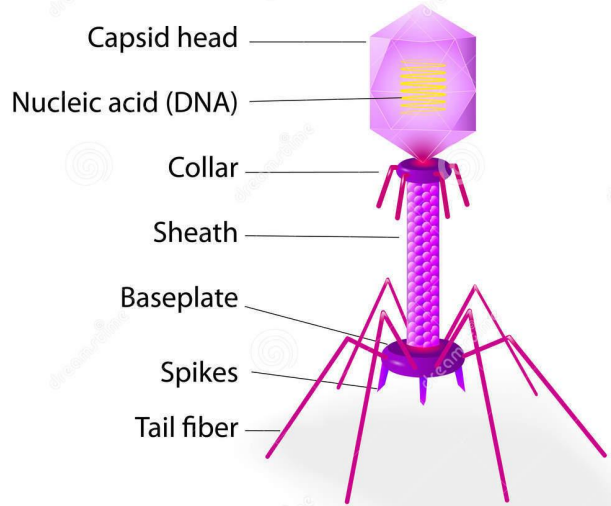
What I will be covering

- What is a virus?
- Why this is important
- Why I chose my topic
- Biology: Where does viral diversity come from?
- Chemistry: How do chemists use viruses to benefit society?
- Society/Environment: Do viruses play a role in our ecosystem?
- What it means to think like a scientist
- Inquiry

What are
viruses?



Structure of bacteriophage



- Infectious agents
- Made up of nucleic acid - capsid
- Do not belong to any kingdom
- Viruses are host specific, therefore do not infect just any cell.

Ex: The rabies virus only attacks brain or nervous cells

Why is this important? / Why I chose my topic

- Future development
- Further studies
- Keeping our minds open to the unexpected





Where does viral diversity come from?

What's the difference between a bacterial and a viral infection?

Bacteria

- Cause infection by dividing and spreading once in body
- Usually treated with antibiotics

Viruses

- Must find host cell
- Inject nucleic acid to replicate
- Antiviral medication used to ease symptoms
- Can be prevented with vaccines



How do chemists use viruses to benefit society?



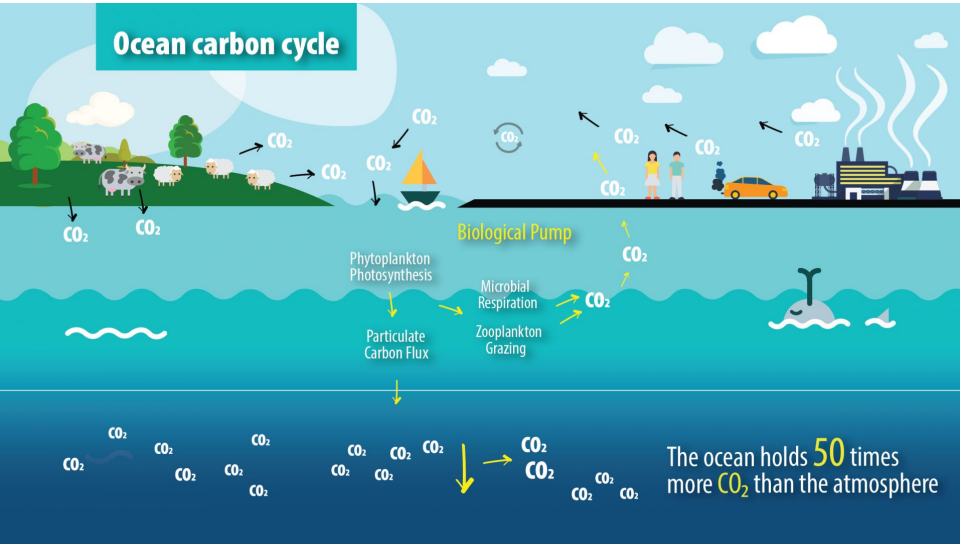
Viruses and Biotechnology

- Proposed alternative medication to bacterial infections



Do Viruses Play A Role in Our Ecosystem?

Viruses and Carbon Cycles



Lead global biogeochemical cycles



Results in increases in net respiration, the release of CO₂ and nutrient recycling in the oceans

Maintaining marine life

- Microorganisms compose more than 90% of the sea's biomass
- Viruses kill approximately 20-30% of this biomass each day



Not believing anything unless you test it - being experimental

Not being biased towards or against anything until it is tested

What does it mean to think like a scientist?

Not being afraid to ask questions - the more the better!

Being able to believe that your Idea, theory, perception could be proven wrong



How Inquiry worked out for me...

Our success

What I struggled with

What worked?

THANK YOU!!

References

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