

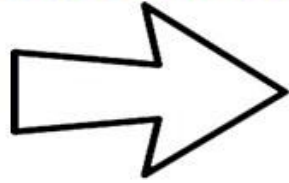
The Original Viral Stars

Part 1. Are Viruses Alive?



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LIVING THINGS



VS



NON-LIVING THINGS

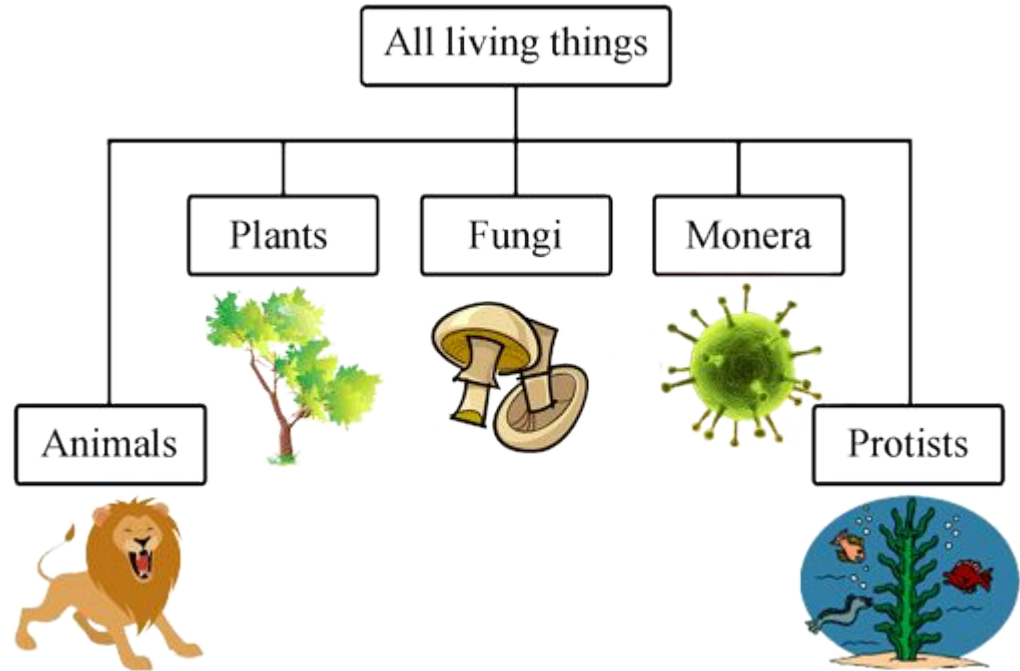


What makes something living?

Biology states that there are 7 things an Entity must do to be considered alive

What do you think they are?

What do you think the creatures in the image to the right have in common?



The Biological Definition of Life

An Entity is considered alive when it:

1. Grows in size and divides its cells
2. Reproduces
3. Has DNA or RNA it can pass on
4. Responds and changes to the environment
5. Can make its own energy
6. Is able to consume and breakdown nutrients
7. Has an internal cellular structure and organization



An Entity is considered biologically alive when it:

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4. Responds and changes to the environment
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7. Has an internal cellular structure and organization

How do the kittens and otters in this picture exhibit the biological characteristics of life in the list orange list above?

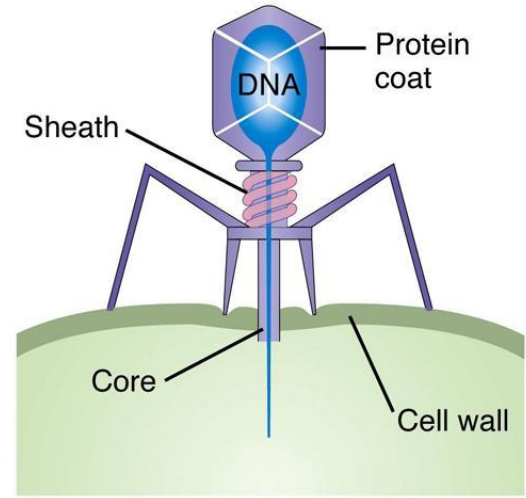
What is a Virus?

To the left is a traditional depiction of a virus.

A virus is an infective agent with a very simple structure:

- A protein coat
- Genetic material (usually very small)
- A mechanism to inject their genetic material into cells

The virus pictured on this slide is a component of the microbial community that call our bodies home. They are called **bacteriophages**, infect only bacteria, and are harmless to us. They provide a central part of the circle life and life, including us, could not exist without certain types of viruses.

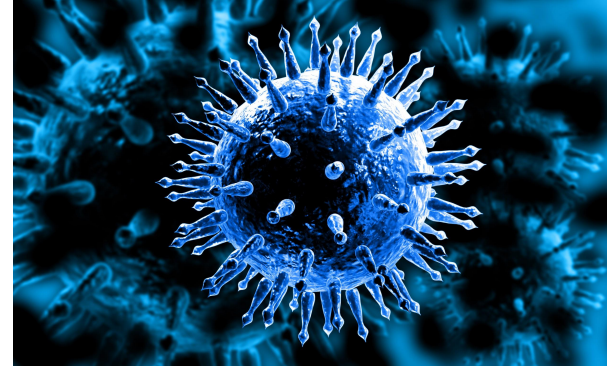


How does a virus spread?

Because a virus is so simple, it lacks the cellular machinery to make its own proteins and requires a living entity to serve as its **host**. It cannot survive and spread, or **propagate**, without a host though it may lie inactive, or dormant.

Because of these facts, scientists do not classify it as a biologically living being, but not all scientists are in agreement.

This and other issues have led to discussions within the scientific community of redesigning our current classification system.

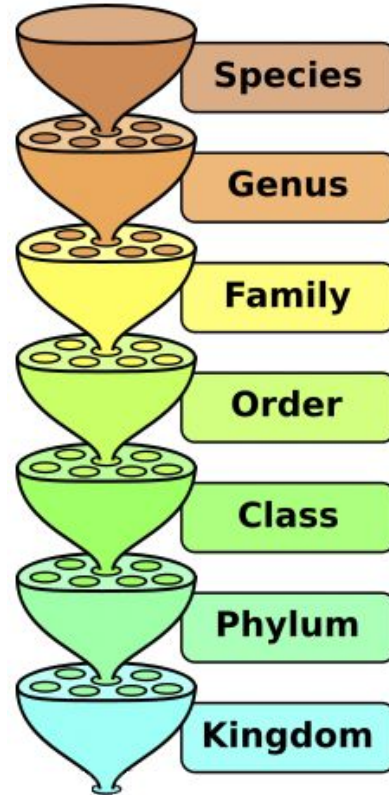


Our Current Biological Classification System

Life is organization into a hierarchical system called “Linnaean Classification” named after 18th century scientist Carolus Linnaeus.

There are 7 different categories that you can see in the image to the right.

There is a list to the right as well that shows what the biological classification of humans are.



Homo sapiens

Members of the genus Homo with a high forehead and thin skull bones.

Homo

Hominids with upright posture and large brains.

Hominids

Primates with relatively flat faces and three-dimensional vision.

Primates

Mammals with collar bones and grasping fingers.

Mammals

Chordates with fur or hair and milk glands.

Chordates

Animals with a backbone.

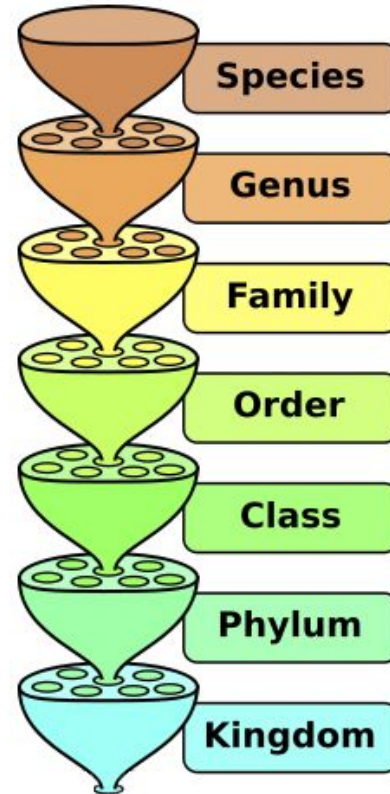
Animals

Organisms able to move on their own.

The Classification System Debate

There is currently a debate inside of scientific community about reclassifying what we currently consider the organization of life.

Some scientists argue that Linnean Classification is outdated and needs to be revamped but doing so would require changing virtually every textbook. Some say it a new classification could also include viruses.



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Are Viruses Alive? Research Review

Your task is to join the scientific debate and decide for yourself, “**Are Viruses Alive?**”

- One of the requirements of biological life
- Case studies on how two entities exhibit this property.
 - One of these entities is a biologically living organism
 - The other is a virus

As you read the material:

- Obtain the [Evidence Gathering Document](#)
- [Read each slide](#) fully. Read both the title and case studies of the two entities
- Decide whether the virus fulfills this characteristic of life or and back up your claim with evidence you collected
- Decide which entity is the virus and back up your claim with evidence you collected