



Tracking the Flu

Lifesaving Research Works on Killer Viruses



San Antonio, TX (Brooks City-Base)—Infectious diseases, such as influenza, can travel and affect anyone in the world. Scientists track the spreading of the flu and analyze virus specimens to create influenza vaccines (flu shots). They are involved with identifying and studying new strains of flu such as H1N1 to see how these viruses affect people.

"A virus is a very very simple organism." Maj. Thomas Gibbons, molecular biologist

Framework

Middle School

Standards

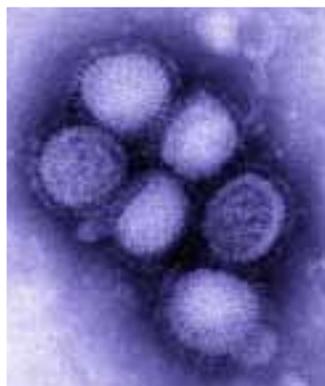
- NSES - C.i.6 ➤ Disease results from infection.
- NSES - F.i.v.2 ➤ Risks are associated with biological hazards.
- STL - 4.D ➤ Technology affects human safety.
- STL - 9.H ➤ Testing and evaluating are conducted.
- STL - 14.I ➤ The development of vaccines requires specialized technologies

Content Illustrated

- Graphics and animations of flu spreading.



Content



Life Science

- Researchers examine biological samples coming to their lab from ill people all over the world. They look for respiratory viruses, especially influenza.
- Scientists divide virus samples for molecular and tissue-culture testing and archiving them for future reference and research on virus strains.
- Influenza, a type of virus, survives on human cells. Influenza is spread by coughing and sneezing. The virus infects cells in the upper respiratory system by binding to cell proteins there and reprogramming the cells to reproduce virus proteins.
- Influenza occurs in three types: A, B, and C. Type A is the most common, with two variations in protein: hemagglutinin and neuraminidase (noted as H and N).

Technology

- A flu shot is the most effective way to prevent the flu. It allows the immune system to fight off the virus by building antibodies to the flu virus.

Engineering

- Each year's vaccine is derived from samples. Scientists look at the molecular and genetic structure of sample specimens and unravel their genetic code. The scientists need to make sure the vaccine matches the genetic code of the viruses so that the vaccine is effective.

Guiding Questions

To think about as you watch:

- How do viruses spread so quickly and infect people?

Suggested Activities

- Research the difference between a virus and a bacterium.

Keywords

antibodies, archive, base pairs, cells, flu, genetic, H1N1, hemagglutinin, immune system, influenza, molecular, neuraminidase, respiratory system, specimen, tissue culture, upper respiratory tract, vaccine, virus

- *Tracking the Flu* can be found online at www.ndep.us/Tracking-The-Flu. Visit www.ndep.us/LabTV for a list of process skills modeled in webisodes.