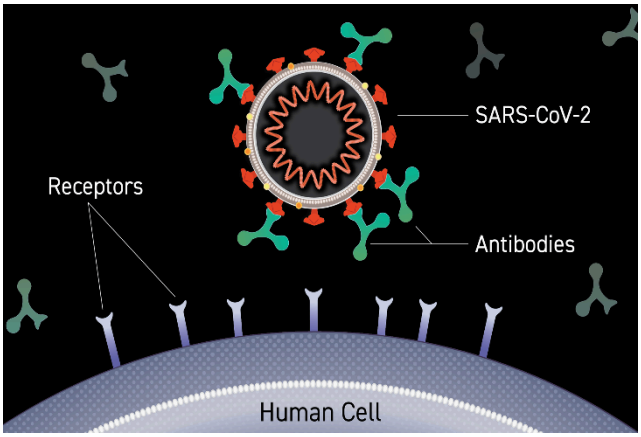
Virus Cell BASICS



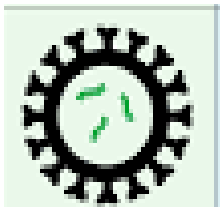
Inside the virus is its genetic material. Like our cells contain DNA (which is a double strand), a virus cell has single strand RNA inside its body.

The outside of the virus has proteins, called ANTIGENS.
Their job is to bind the virus to human cell receptors. Once it fuses with the human cell it starts to reproduce.
As the virus replicates the VIRAL LOAD increases.

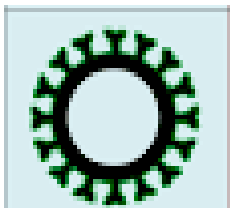
The virus constantly sheds proteins (called ANTIGENS).
Our body detects these and begins sending ANTIBODIES.

These antibodies block the virus cells from linking to the human cell receptor.
When the virus can no longer attach to human cells, it can't reproduce and it dies.

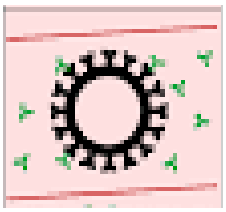
Why is this important?
It helps explain the 3 types of tests we hear about for COVID-19.



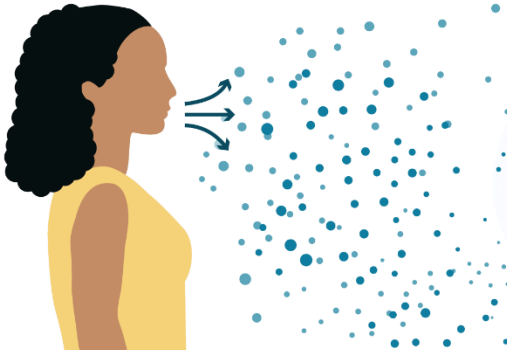
Molecular (e.g. PCR) Test detects the genetic material (RNA) inside the virus.
- Deep nasal, nostril, or saliva test
- Needs to be processed in a lab
- Most accurate



Antigen Test detects the proteins (antigens) on and shedding from the surface of the virus.
- Nostril or throat sample
- Rapid result
- Accuracy depends on how much virus is present.



Antibody Test detects antibodies made by the immune system in response to the infection.
- Blood test
- Not used to diagnose a current infection



Everybody spreads respiratory droplets every time we breathe or talk.
Viruses like the cold, flu, and COVID-19 are shared through these droplets.

Some are large and we can see them with the naked eye (like when we sneeze). Some are very small and can stay airborne.

These droplets all settle onto surfaces.



Just through breathing and talking we share very small airborne droplets.
Coughing and sneezing spreads droplets that are larger and go further.





These droplets are shared to others through the air as they breath the air into their respiratory systems.



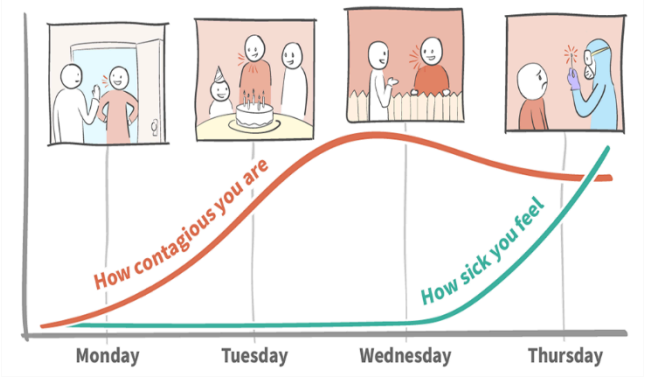
We also get viruses by touching contaminated surfaces and then our face, where the virus can enter through our nose, mouth and eyes.



To minimize the spread we wear masks, stay 6 feet apart, practice hand hygiene, and continually clean surface contact areas.



Staff and students who have been exposed to a positive or probable case of COVID-19 are advised to quarantine for 14 days. During this time, they are not permitted to attend school in-person.



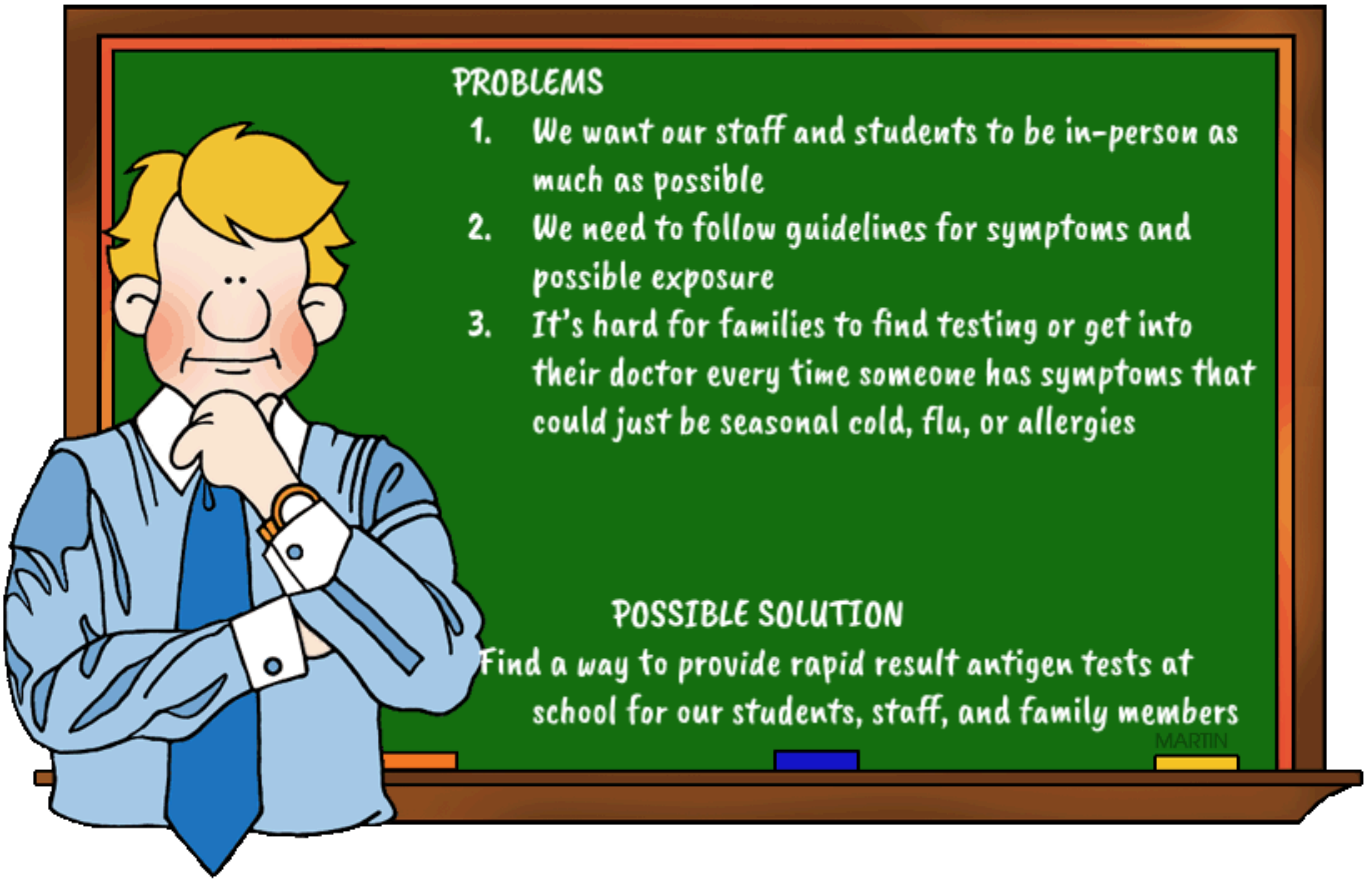
One of the biggest problems has been it isn't always easy to tell who is infected with COVID-19.

Some people with COVID-19 never feel or show any symptoms at all, but they are still just as contagious.

Because of how viruses work, even people who develop symptoms are spreading the virus before they start to feel ill.

Without a negative COVID-19 test or alternate diagnosis, schools require anyone with symptoms to assume they might have COVID-19. They can't attend in-person for 10 days. All family members cannot attend for 14 days.







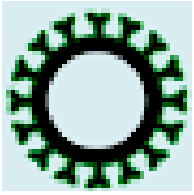
LATE LAST FALL
The federal government sent shipments of rapid result ANTIGEN tests to the States.

Then the State of Illinois sent these test kits to local health departments.

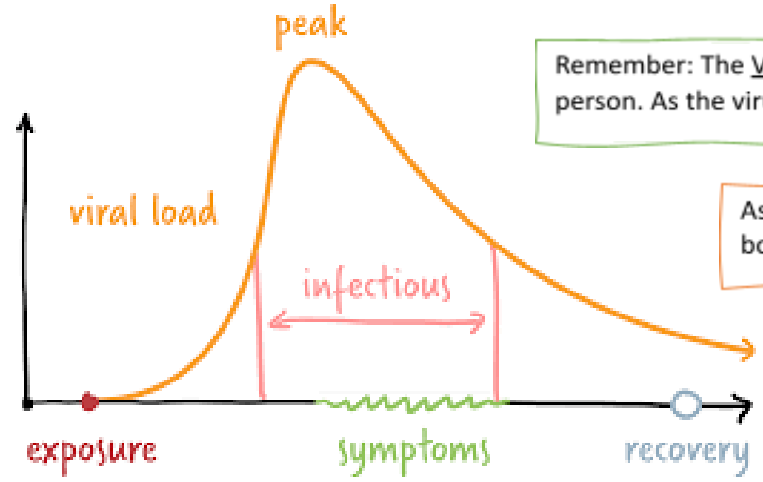
For Leland School to get them from LaSalle County, we applied to ISBE to be a pilot district.

Antigen Tests detect the proteins (antigens) on and shedding from the surface of the virus.

- Nostril or throat sample
- Rapid result
- Accuracy depends on how much virus is present.



WHY is this important to know?



Remember: The Viral Load is the amount of virus in the infected person. As the virus replicates, the load increases.

As the viral load grows, symptoms will increase as the body send antibodies to fight the virus.

A bigger viral load means more proteins (antigens) are shed.

Day 1 2 3 4 5 6 7 8

Antigen Tests are most effective and accurate during the first week of symptoms.
They can still measure antigens throughout the cycle of infection as well as in asymptomatic people, but results are less reliable.

WHY does Leland School participate in this program?

- **The person with symptoms, along with immediate family members, can return to in-person learning after 2 negative test results (48 hours apart)**
- **Provide a convenient option for our staff, students, and their families**



WHO does the tests?
Leland School staff trained to administer the tests
WHAT are they?
Abbott BinaxNOW rapid result (15 minutes) antigen tests
WHERE
Scheduled at the school
WHEN
During the first week of symptoms
HOW
A doctor's order must be on file.

- **Order can be a single order valid for 1 person for 48 hours**
- **Doctor can issue a standing order to be on file for student(s), staff, and family members valid through June**

Results are provided to the adult participant and to the student's parent/guardian.
Results are reported to the IDPH and local health department within 24 hours.
Results are reported directly to the individual's personal healthcare provider.