Part 1 Viruses

Name:

Part 1 Lesson 1 Introduction

How are a computer virus and a real virus similar?

Infectious Diseases will include

-V_____

-B_____

-P_____

Please describe three "things" that spread infectious disease. Use the globe below to describe the dangers that infectious diseases can, and have caused throughout human history?

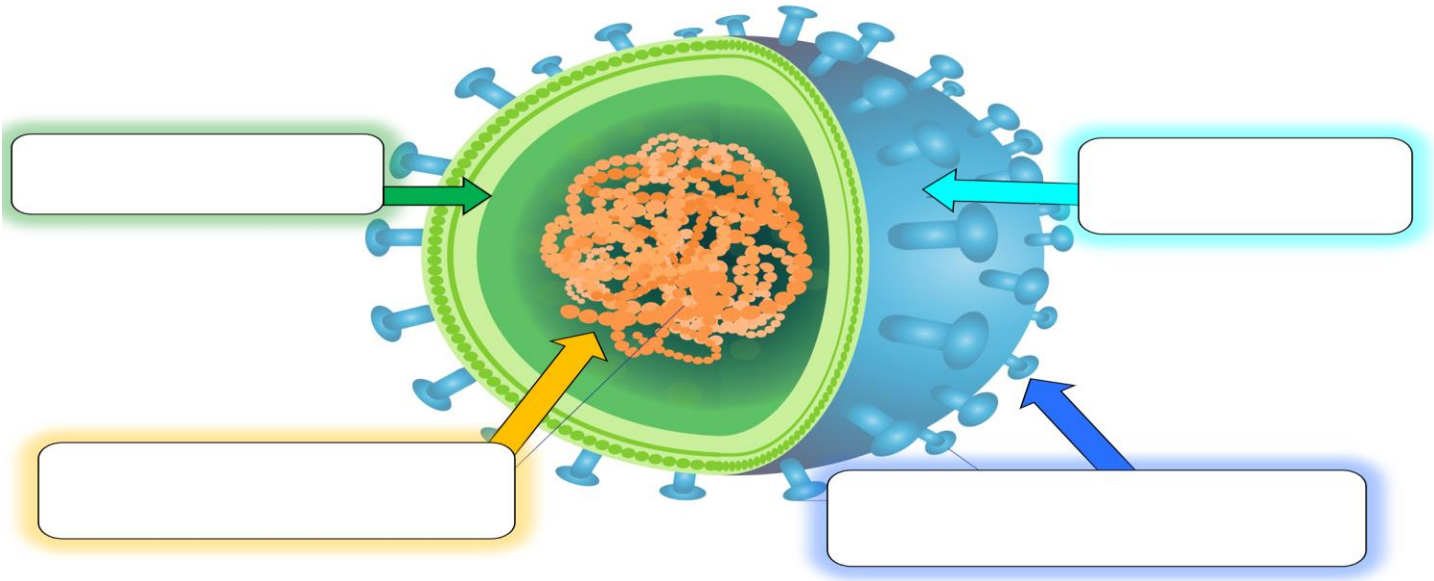
Viruses may have evolved with the first cells but their evolution is difficult to trace because they don't create _____.

A virus is a _____ _____ (DNA or RNA) enclosed in a _____ (capsid) shell or coat.

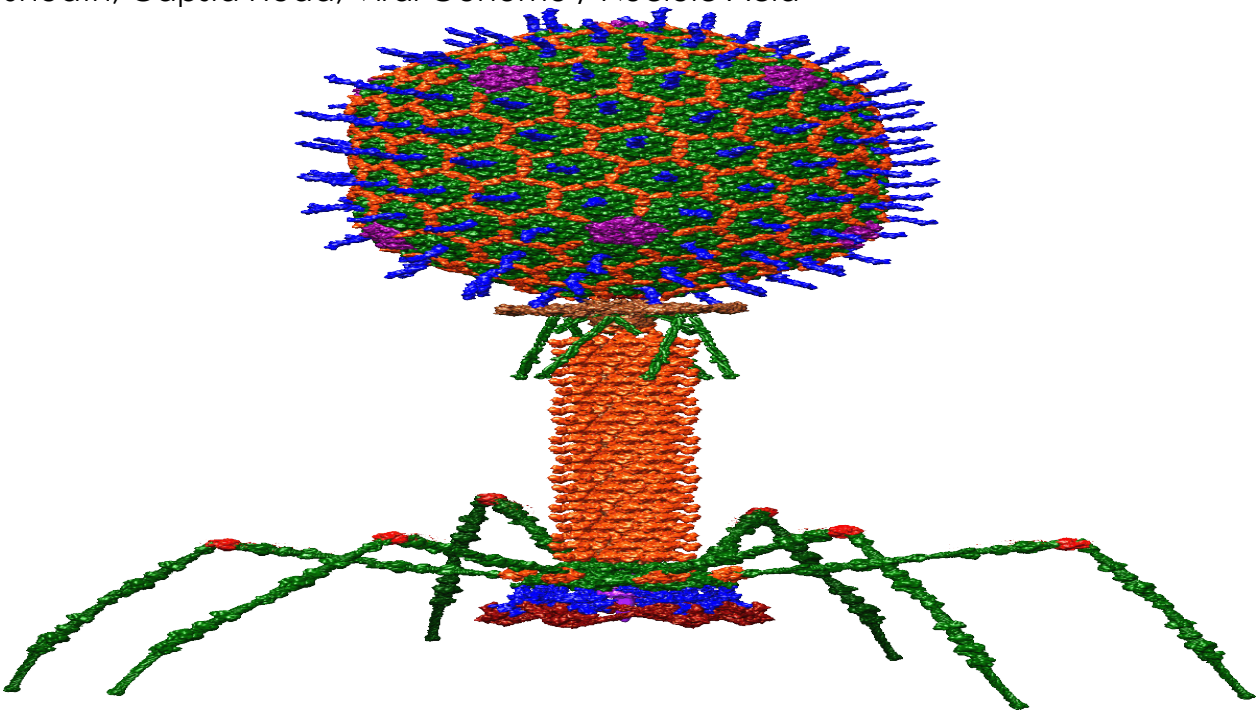
The capsid coat can have several _____, and may further be surrounded by an _____.

The envelope is made up of _____ and is usually imbedded with _____ which help the virus recognize its host cell.

Please label the virus below. Extra info is welcome. Word Bank: Envelope, Nucleic Acid, Capsid/Protein Coat, Spikes



Please label the bacteriophage below. Word Bank: Baseplate, Spikes, Tail or Fiber, Collar, Sheath, Capsid Head, Viral Genome / Nucleic Acid

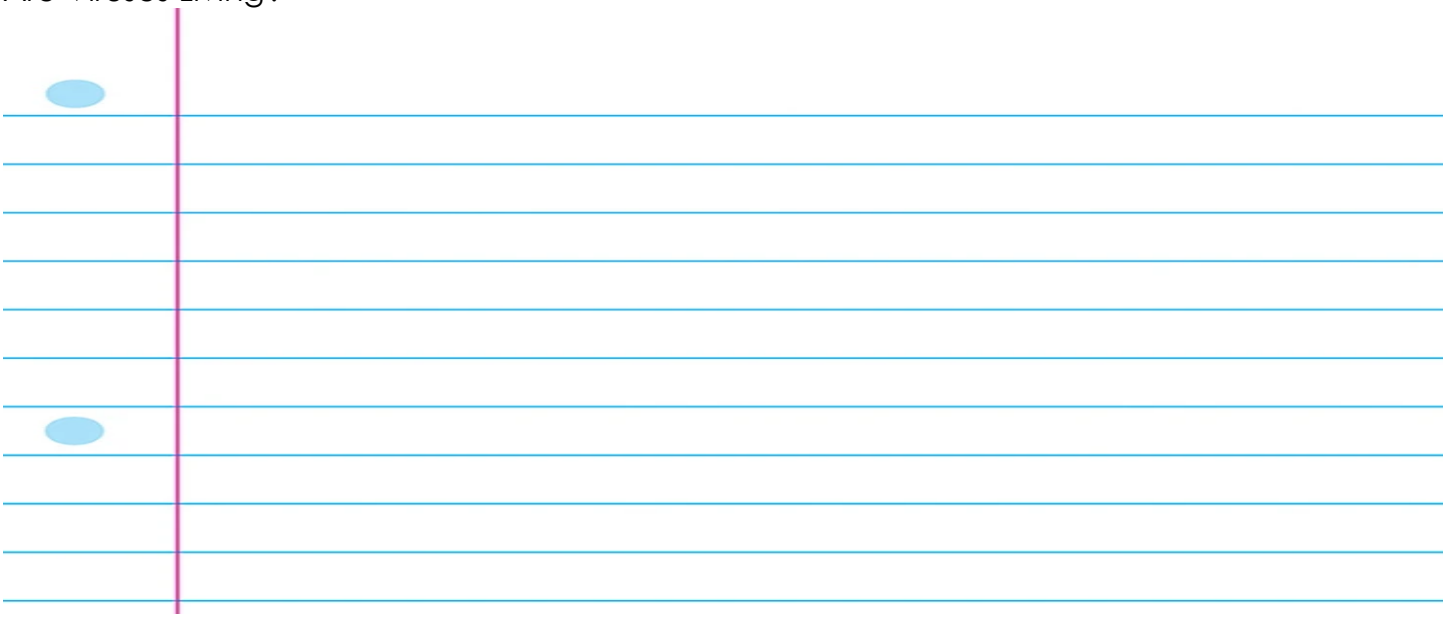


Part 2 Lesson 2 Shapes of Viruses

Most viruses vary in diameter from 20 _____ (nm; 0.0000008 inch) to 250–400 nm;
The largest, however, measure about 500 nm in diameter and are about 700–1,000 nm in length. Only the largest and most complex viruses can be seen under the _____ at the highest resolution.

Viruses: They can replicate only by _____ and taking over other cells.
They _____ the cellular machinery for self-reproduction.

Are Viruses Living?

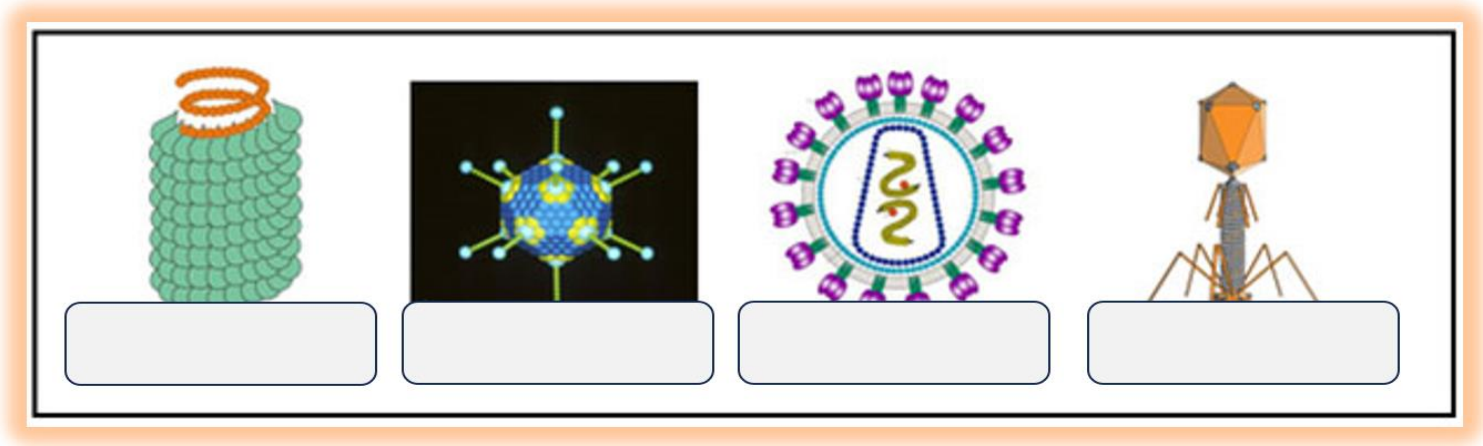


Why Viruses are not living?
Viruses are not made of _____
They have no cell _____.
They do not _____ and develope
They do not _____ to the environment

Why Viruses are kind of living but not really.
Viruses _____, but only by invading living cells, not by themselves
They Evolve / _____
Limited _____
Viruses are ____ considered living by most scientists.

The shapes of viruses are classified into four groups: filamentous, isometric/Icosahedral, enveloped, and head and tail.
-**Filamentous viruses** are long and _____. Many _____ viruses are filamentous, including TMV (tobacco mosaic virus).
-Isometric (or icosahedral) viruses have _____that are roughly _____, (Roundish) such as poliovirus or herpesviruses.
-**Enveloped viruses** have _____ surrounding _____. Animal viruses, HIV, are frequently enveloped. Covid-19
-**Head and tail viruses** infect _____. They have a head that is similar to icosahedral viruses and a tail shape like filamentous viruses.

Name the type of viruses below?

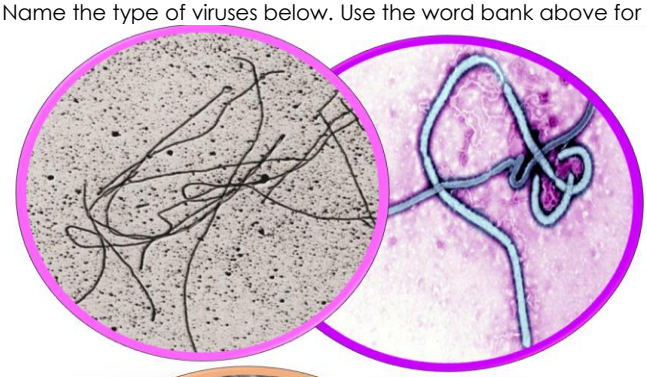


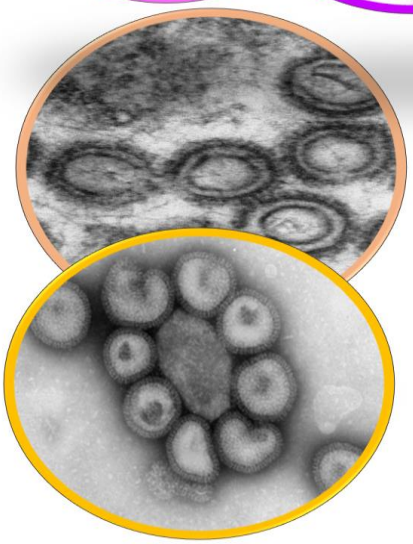
Quiz Wiz 1-10

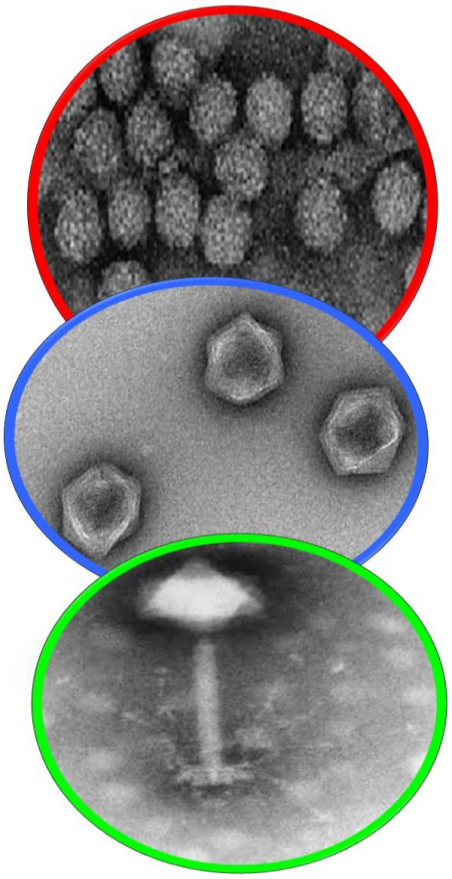
- Word Bank: Filamentous (rod), Enveloped (round), Isometric or Icosahedral (multi-sided), Head and Tail / Complex (bacteriophage)

1)	2)	3)
4)	5)	6)
7)	8)	9)
10)	*11)	

Name the type of viruses below. Use the word bank above for support.



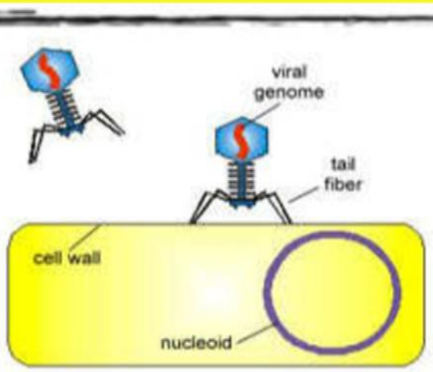




Part 1 Lesson 3 Viral Replication

Virus _____ can be defined as a host cell surface component recognized by the virus "spikes" as a gateway to _____ into the cell.

Please animate and describe with some text viral replication in the boxes below

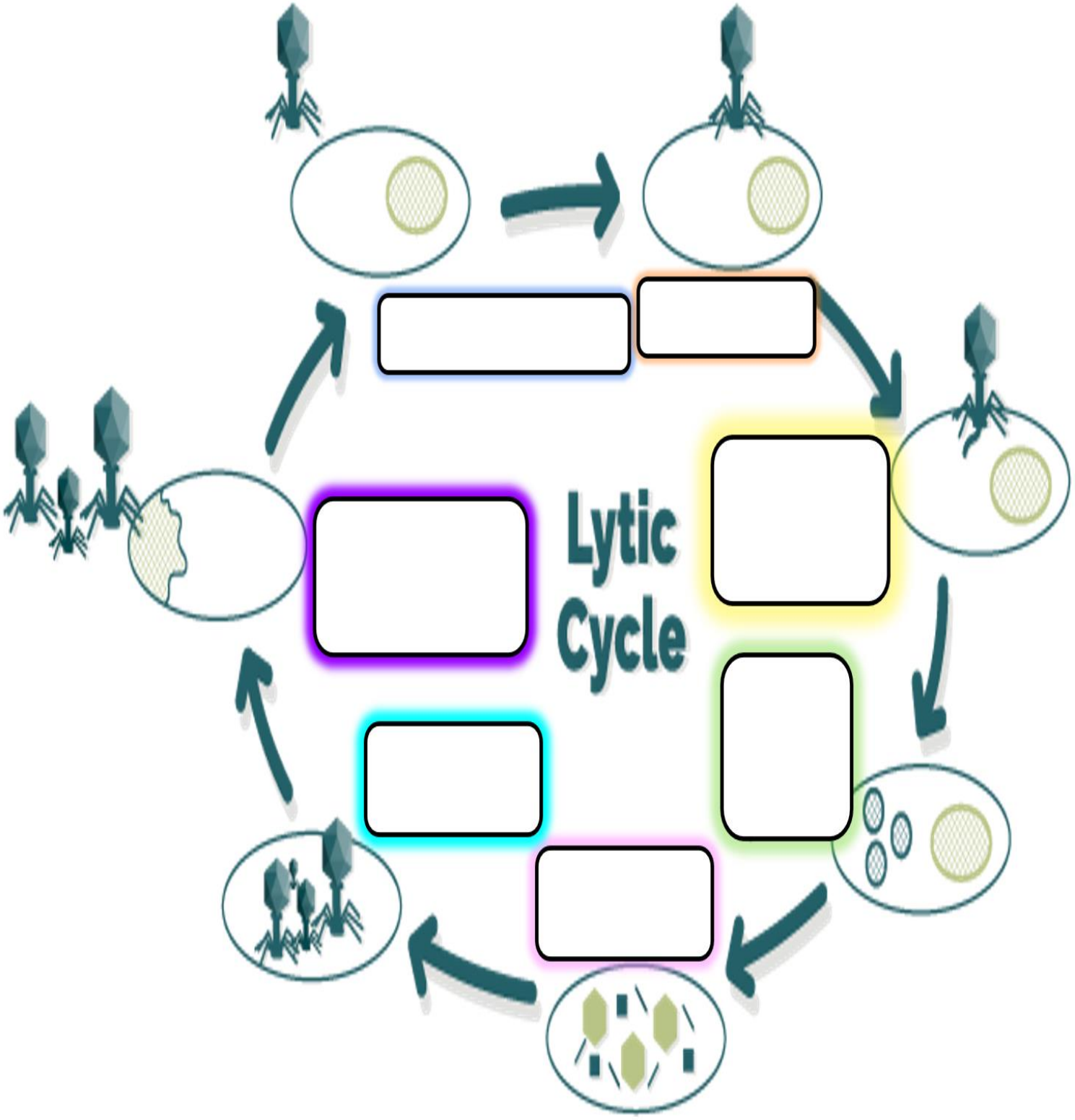


Retrovirus: A single-stranded _____ virus containing an enzyme that allows for a reversal of genetic _____.

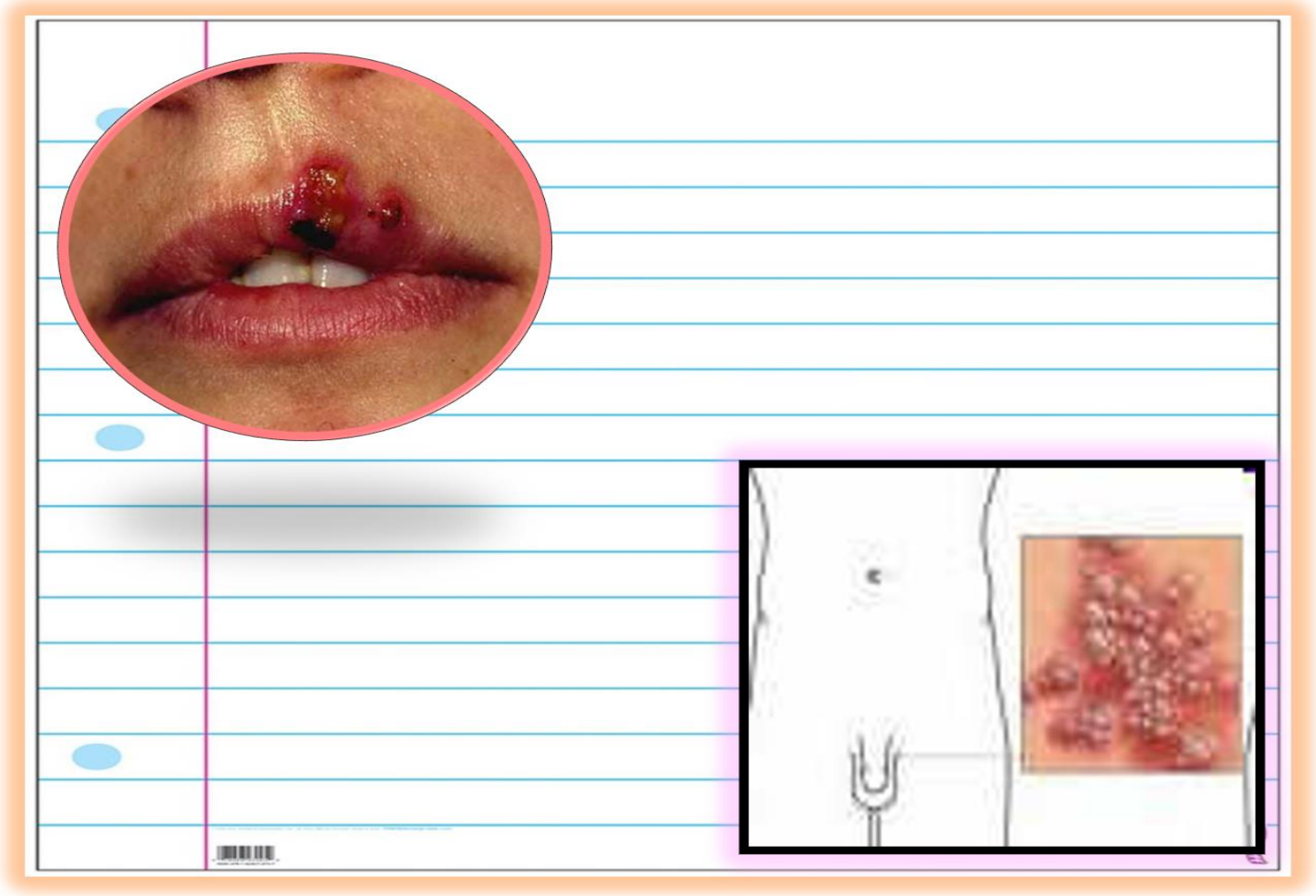
From RNA to _____ rather than the usual DNA to RNA.

Retroviruses need to use the cellular machinery of the organisms they infect to make _____ of themselves.

Lytic viruses: Causes host cell to _____ / die as virus replicates.

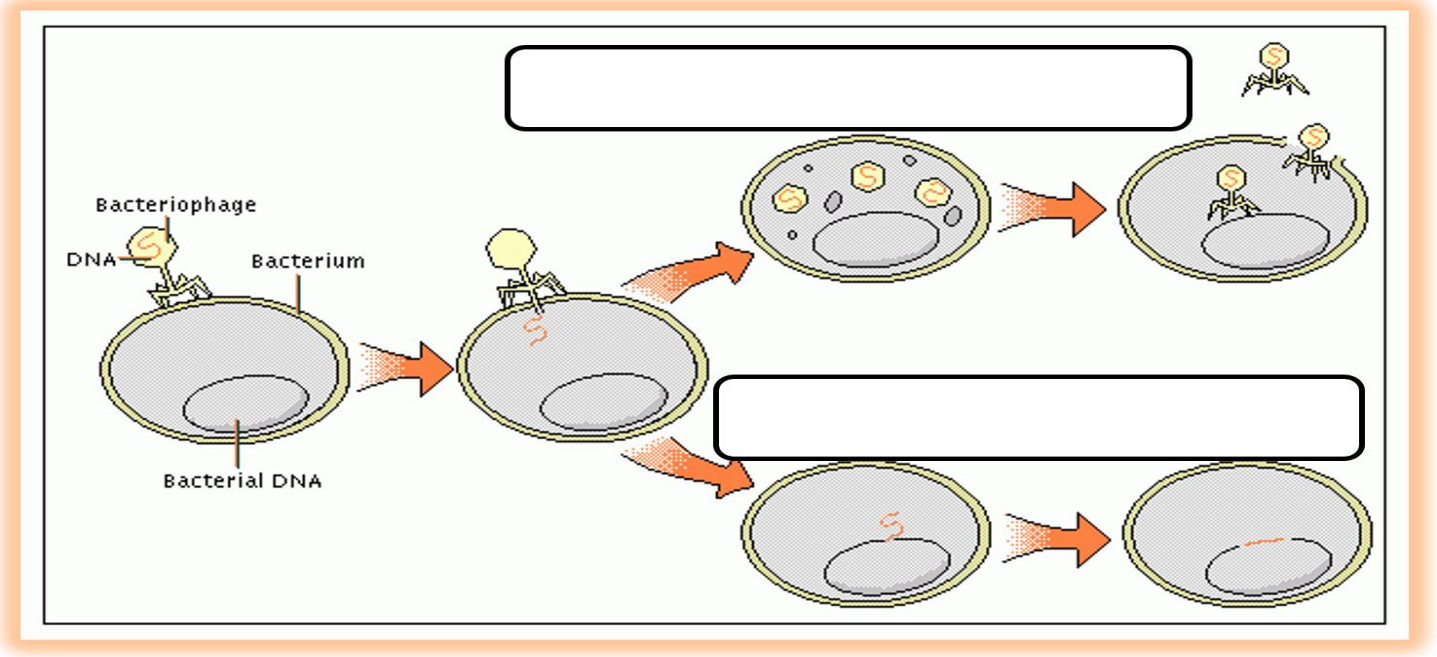


What are these viruses? Are they same? Are they lytic or lysogenic? Let me know below.

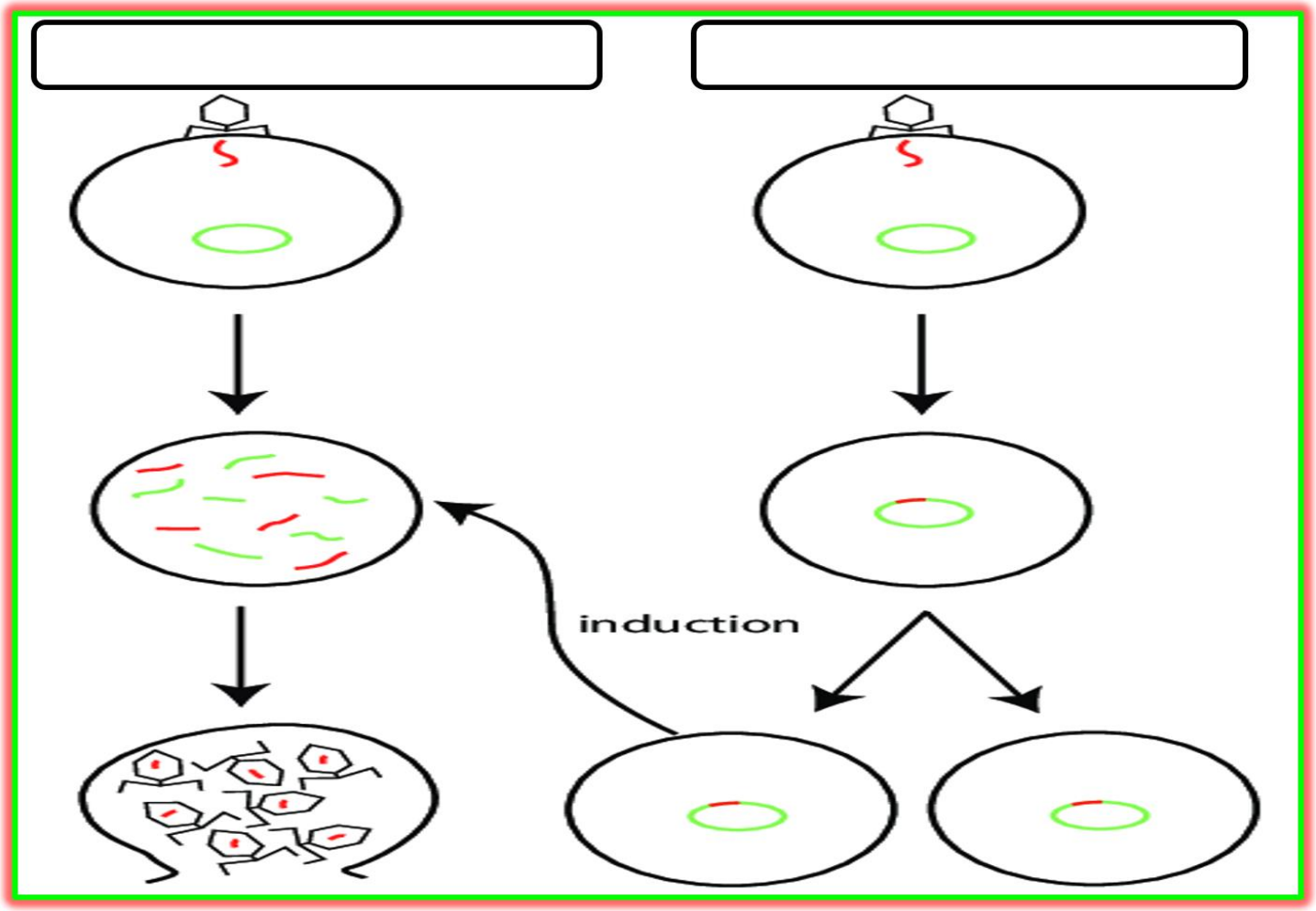


Lysogenic Virus – A virus that can _____ inside your cells DNA until it breaks out (lytic) and then hides again. With you forever.

Which one is the lytic cycle, and which is a lysogenic cycle?



Which one is the lytic cycle, and which is a lysogenic cycle?



Part 1 Lesson 4 Covid-19

A coronavirus any of various _____-containing spherical viruses of the family Coronaviridae with a _____ or "corona" of club-shaped spikes on their surface.

S_____ A_____ R_____ S_____ (SARS-CoV)

-SARS was first recognized as a distinct strain of coronavirus in 2003, traced back to the Chinese province of Guangdong in 2002.

-MERS – M_____ E_____ R_____ S_____-related coronavirus, or EMC/2012, is a species of coronavirus which infects humans, bats, and camels.

Causes respiratory illness and had a high death rate. 4 out of every 10

On March 11, 2020 the World Health Organization (WHO) characterized COVID-19 as a pandemic.

- _____: A worldwide outbreak of a new disease.

The virus is believed to have arisen from a wet market in _____ China.

- A wet market sells fish, shellfish, live animals, and other animal products.

Worldwide Death toll exceeding 3.3 million as of 7/19/2021 -WHO

Corona Virus Disease 2019 (Covid-19)

What is a coronavirus?	How does it spread?
What is the prevention for this disease?	What are the symptoms of Covid-19? Who's at the most risk?

What is stigma and resilience? How does it relate to Covid-19	What treatments are available? What should you do if you're sick?

Preventive measures for FLU + COVID-19

Washing your hands is the best protection:

Wash often
- Use soap and water
- Wash for at least 20 seconds

Use hand sanitizer
- Alcohol-based
- When washing is not an option

Avoid close contact:

With people who are sick or may appear under the weather

Stay home when you are sick. Do not expose others.

Face masks:

Those showing symptoms of these diseases **should wear a mask** to help prevent the spread of the disease.

Wearing a mask is not recommended for those who are well, it will not protect you.

Cover your cough or sneeze:

Use a tissue then
- Trash the tissue
- Wash your hands

Into your elbow
- When a tissue is not available

Clean and disinfect often:

With a household cleaning product, wipe
- Frequently touched objects
- Regularly used surfaces

Mount Sinai

Please create a one page google draw with supportive text that informs the public about the Coronavirus Disease 2019 (Covid-19). Your one page public service announcement should have visuals, word art, supportive text, be informative and accurate. It should educate someone about the following.

- TITLE WITH THE NAME OF THE DISEASE
- Then break up the questions below and place them around your draw with visuals. Make it visually appealing and informative but a quick read. Limit your text to what is most important.
- -What is the Coronavirus Disease 2019?
- -How does it spread?
- -What is the prevention for this disease?
- -What are the symptoms?
- -What should you do if you're sick?
- -Works Cited at the bottom – Please try and visit the CDC (Centers for Disease Control) or WHO (World Health Organization).

Part 1 Lesson 5 Ebola Virus Disease Case Study

Ebola Background Information.

E_____ V_____ D_____ (EVD), is a severe, often fatal illness in humans.

- 25%-90% fatal and depends on the strain.

Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever, is a rare but severe, often fatal illness in humans.

There are _____ species of virus that have been identified: Zaire, Bundibugyo, Sudan, Reston and Taï Forest. The _____ strain is the most deadly and this is the one in the 2014 outbreak.

Ebola Transmission Information

_____ are believed to be the natural host of the Ebola virus.

From bats, the virus can _____ to other _____ and then to humans.

- Contact with infected primates (_____) is one way the virus is believed to enter humans.

Ebola spreads through _____-to-_____ contact.

- Direct contact with blood, secretions, organs or other bodily fluids of infected people. Also contact with surfaces. (soiled _____ and _____).

Symptoms

The incubation period is 2 to _____ days after you have contracted the virus before symptoms may show.

- Humans are _____ infectious until they develop symptoms.
- Very sudden _____ and fatigue, muscle pain, headache and sore throat.
- Severe _____, diarrhea, rash, kidney damage, and liver function, internal and external bleeding, _____ damage.
- Bleeding from the _____, nose, and all orifices.
- Hemorrhagic rash

Diagnosis is difficult at first because the fever and fatigue are like a lot of other _____.

- Samples are an extreme biohazard risk.

Treatment.

- R_____ with oral or intravenous fluids.
- Treatment in Liberia vs treatment in the U.S.A are very different.
- Some approved V_____ are available

Outbreak Control

- Need to manage each case, surveillance, laboratory services, safe burials, social awareness.

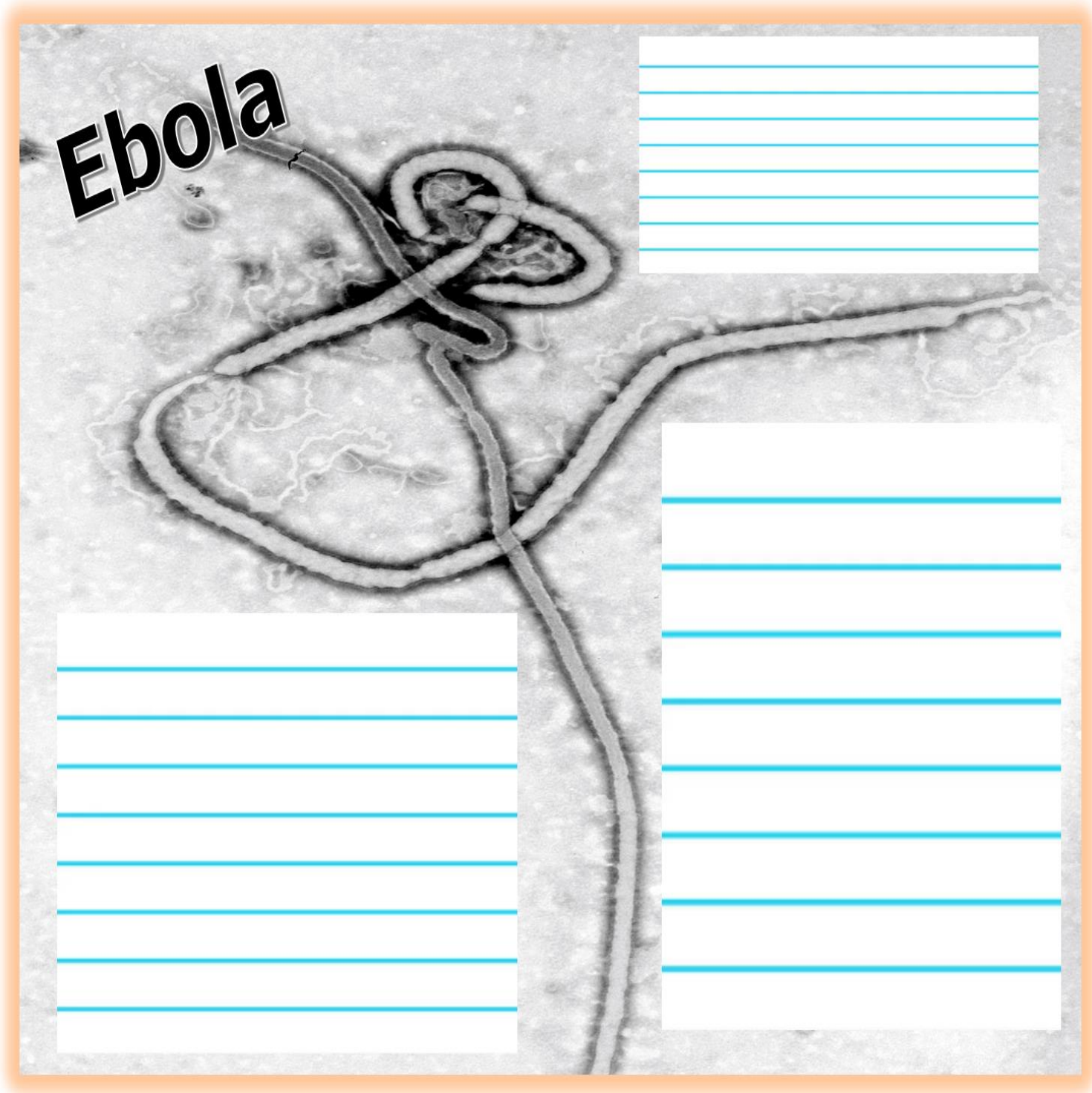
Which is a bogus statement about Ebola? A.) The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission. B.) The Ebola virus causes serious illness which is often fatal if untreated. C.) The incubation period (the time from infection) with the virus to onset of symptoms is 1 to 3 days. D.) Supportive care is rehydration with fluids- and treatment of specific symptoms.	Which is a bogus statement about Ebola? A.) Gloves, full protective facemask, gowns, and all precautions should be used to help in the treatment. B.) Clothing and bedding from an infected person is not contagious. C.) Diagnosis is difficult at first because the fever and fatigue are like a lot of other tropical diseases. D.) Humans are not infectious until they develop symptoms. E.) People can continue to spread the virus for up to 7 weeks in their body fluids if the virus is present.
Which is a bogus statement about Ebola? A.) There are 5 species of virus that have been identified: Zaire, Bundibugyo, Sudan, Reston and Taï Forest. B.) Ebola spreads from direct contact with blood, secretions, organs or other bodily fluids of infected people. Also contact with surfaces (soiled bedding and clothing). C.) Early symptoms are a very sudden fever and fatigue, muscle pain, headache and sore throat. D.) Humans are highly infectious before they develop any symptoms.	Which is a bogus statement about ways to avoid getting Ebola? A.) Wash hands frequently or use an alcohol-based hand sanitizer. B.) Avoid contact with blood and body fluids of any person, particularly someone who is sick. C.) Do not handle items that may have come in contact with an infected person's blood or body fluids. D.) Do not touch the body of someone who has died from Ebola. E.) It's okay to eat bats and nonhuman primates (bushmeat) or their blood and fluids.
Which is a bogus statement about ways to avoid getting Ebola? A.) Wash hands frequently or use an alcohol-based hand sanitizer. B.) Avoid contact with blood and body fluids of any person, particularly someone who is sick. C.) The 2014-2016 Ebola outbreak has been the only time Ebola has entered the human population. D.) Do not touch the body of someone who has died from Ebola. E.) It's not safe to eat bats and nonhuman primates (bushmeat) or their blood and fluids	Think Question: In what ways would an outbreak in the US be different from the outbreak in West Africa?

Ebola Videos

Monkey Meat and Ebola Outbreak in Liberia (Start of Outbreak)
https://www.youtube.com/watch?v=XasTcDsDfMg&t=699s

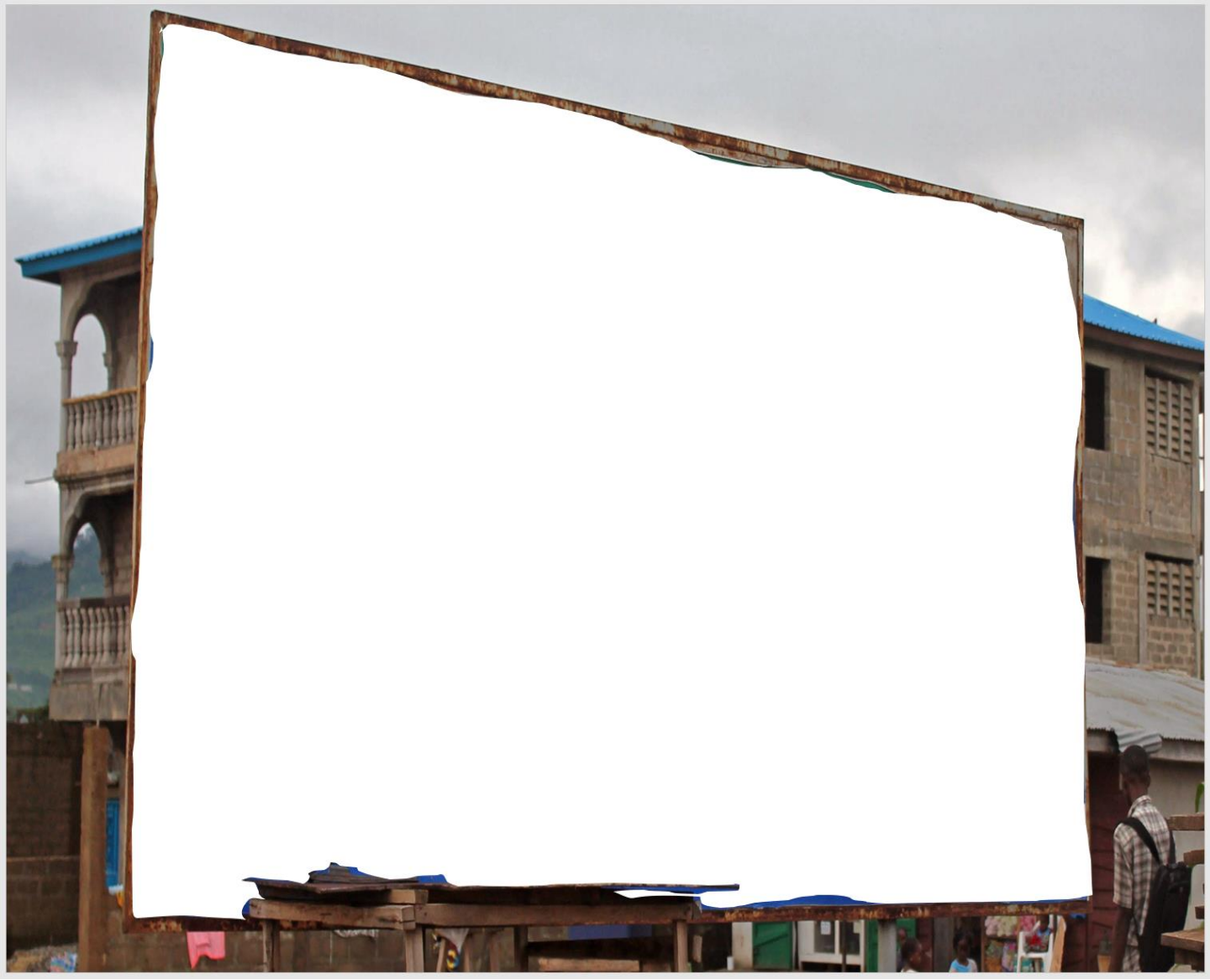
Video Link! The Fight Against Ebola (29 minutes
- https://www.youtube.com/watch?v=ANUI4uT3xJI
- Please Preview (This is up close)

Notes During Videos



Describe Western Africa? How is it different from developed nations?	How is it suspected that Ebola makes the jump from the rainforest into the human population?
What problems is West Africa dealing with that makes fighting Ebola more difficult?	Questions that you have…

Create public service message in the space below to educate people before and during an Ebola outbreak.



Part 1 Lesson 6 Zika, Wrap Up, and Virus Case Study

Zika Virus. Spread mostly by the bite of an infected *Aedes* species _____.

- Can also be passed through sexual transmission.

Zika is a Flaviviridae virus.

- Other common Flaviviridae viruses include….
- _____ Fever
- West Nile Virus
- _____ Fever

Most people will have only mild symptoms or none at all. Common symptoms of Zika are…

- Fever
- Rash
- _____
- Conjunctivitis (red eyes)

Zika can be passed from a pregnant woman to her fetus.

- Infection during pregnancy can cause a birth defect of the brain called _____in the fetus.

No vaccines exist and prevention is avoiding mosquito bites.

- Especially if _____.
- Also avoid unprotected sex

Reading Article Wrapping Up Viruses

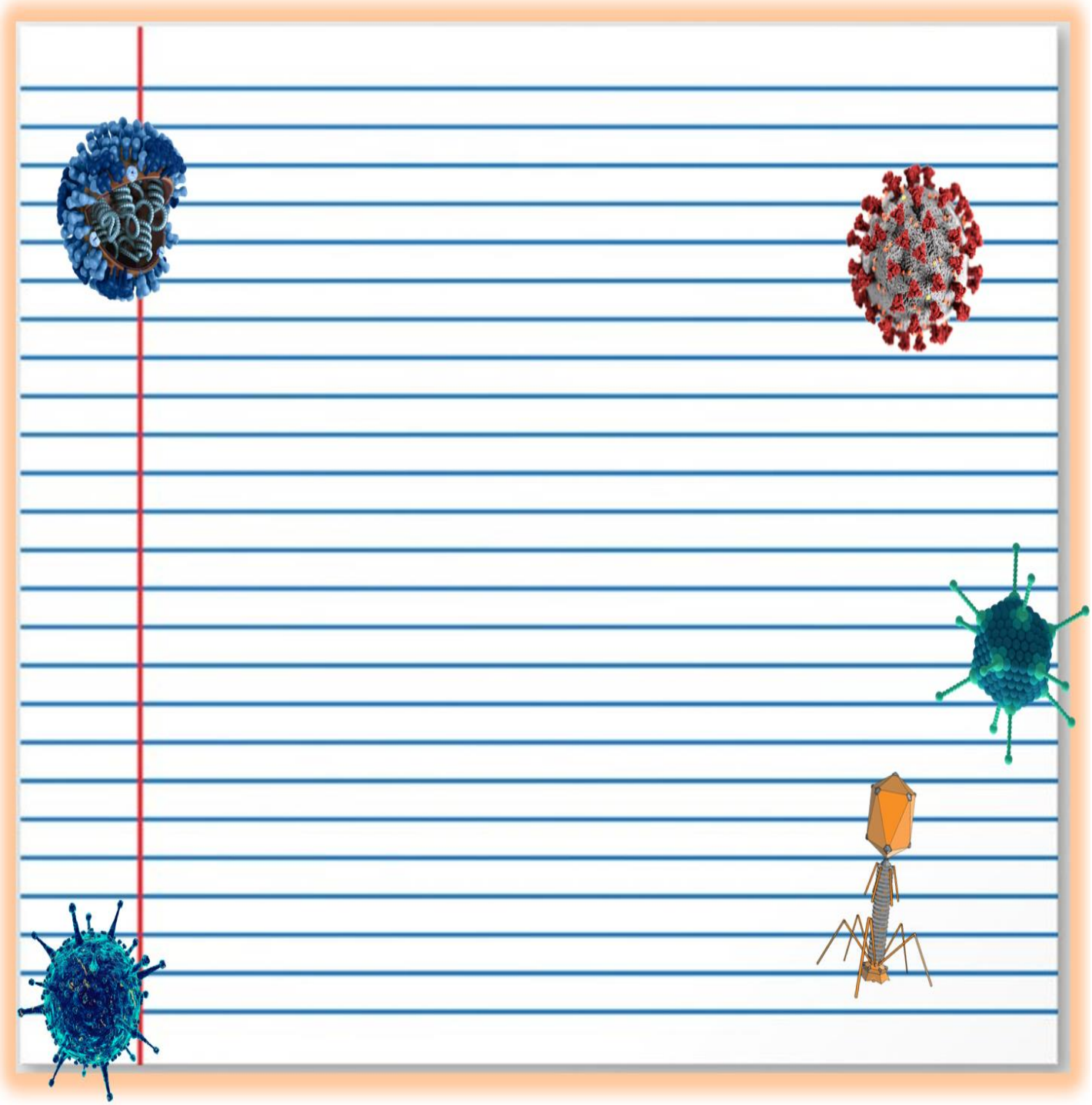
- https://www.livescience.com/53272-what-is-a-virus.html

Case study a virus?

Research a virus in detail, including how they act, transmission, and how they can affect people. Conclude with treatments and vaccines if possible. Be prepared to share your findings to a peer

Smallpox, Rhinovirus, Measles, Mumps, Rubella, Chickenpox, Hepatitis, herpes simplex (HSV), herpes complex, polio, rabies, hantavirus, COVID-19, SARS-CoV, SARS-CoV-2, MERS-CoV, dengue fever, Marburg Virus, Influenza, Rotavirus, HPV.

- List of all human viruses and associated pathologies.
- https://viralzone.expasy.org/678

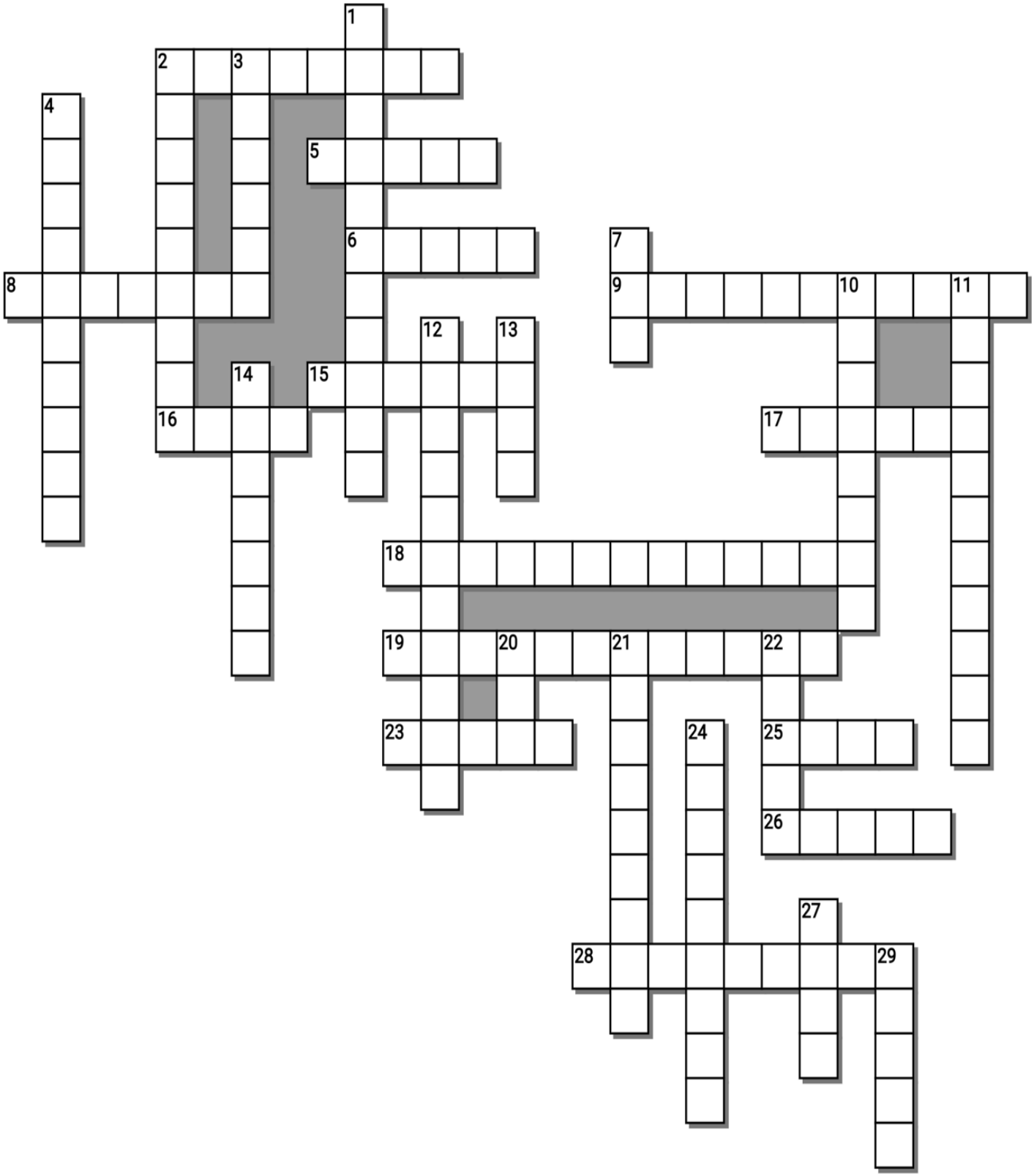


Across

2. Zika Virus. Spread mostly by the bite of an infected Aedes species _____
5. There are 5 species of Ebola virus that have been identified: Zaire, Bundibugyo, Sudan, Reston and Taï Forest. The _____ strain is the most deadly and this is the one in the 2014 outbreak.
6. _____ virus disease (EVD), is a severe, often fatal illness in humans.
8. Viruses may have evolved with the first cells but their evolution is difficult to trace because they don't create _____?
9. A virus is a N_____A_____ (DNA or RNA) enclosed in a protein (capsid) shell or coat.
15. A coronavirus any of various RNA-containing spherical viruses of the family Coronaviridae. with a crown or "_____" of club-shaped spikes on their surface.
16. Severe Acute Respiratory Syndrome (_____-CoV). It was first recognized as a distinct strain of coronavirus in 2003, traced back to the Chinese province of Guangdong in 2002.
17. The envelope is made up of _____ and is usually imbedded with proteins which help the virus recognize its host cell.
18. A _____, also known informally as a phage, is a virus that infects and replicates within bacteria and archaea. The term was derived from "bacteria" and the Greek φαγεῖν,meaning "to devour"
19. Zika can be passed from a pregnant woman to her fetus. Infection during pregnancy can cause a birth defect of the brain called _____ in the fetus.
23. Ebola spreads through _____-to-human contact.
25. Head and _____ viruses infect bacteria. They have a head that is similar to icosahedral viruses and a tail shape like filamentous viruses.
26. Viruses: They can replicate only by invading and taking over other _____..
28. Virus _____ can be defined as a host cell surface component recognized by the virus "spikes" as a gateway to entry into the cell.

Down

1. _____ viruses are long and cylindrical. Many plant viruses are filamentous, including TMV (tobacco mosaic virus).
2. The _____ and Megavirus are extremely large and complex viruses.
3. The capsid coat can have several _____, and may further be surrounded by an envelope.
4. A single-stranded RNA virus containing an enzyme that allows for a reversal of genetic transcription.
7. A virus is a Nucleic Acid (_____ or RNA) enclosed in a protein (capsid) shell or coat.
10. A _____ virus: A software program capable of reproducing itself and usually capable of causing great harm to files or other programs on the same computer.
11. Isometric (or _____) viruses have shapes that are roughly spherical, such as poliovirus or herpesviruses.
12. A _____ any of various RNA-containing spherical viruses of the family Coronaviridae. with a crown or "corona" of club-shaped spikes on their surface.
13. _____ are believed to be the natural host of the Ebola virus.
14. A virus is a Nucleic Acid (DNA or RNA) enclosed in a _____ (capsid) shell or coat.
20. A virus is a Nucleic Acid (DNA or _____) enclosed in a protein (capsid) shell or coat.
21. _____ viruses have membranes surrounding capsids. Animal viruses, HIV, are frequently enveloped.
22. _____ viruses: Causes host cell to split / die as virus replicates.
24. _____ Viruses – A virus that can hide inside your cells DNA until it breaks out (lytic) and then hides again. With you forever.
27. Stay home when sick means that you should… Stay _____ When Sick!
29. Most viruses vary in diameter from 20 nanometres (nm; 0.0000008 inch) to 250–400 nm; they're extremely _____!!



----------teacher can remove this word bank to make puzzle more challenging----------

Possible Answers

FOSSILS, BATS, CELLS, CORONA, DNA, EBOLA, ENVELOPED , FILAMENTOUS , HOME, HUMAN, LYSOGENIC, LYTIC, MIMIVIRUS , PROTEIN, RNA, RETROVIRUS, SARS, SHAPES, SMALL, TAIL, ZAIRE, BACTERIOPHAGE, COMPUTER, CORONAVIRUS, ICOSAHEDRAL, LIPIDS, MICROCEPHALY, MOSQUITO., NUCLEIC ACID, RECEPTORS

Part 1 Review Game Lesson 7

Name:

1-20 = 5 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

IT's GONE VIRAL	SHAPE-UP	IT's NOT ALIVE	OH-NO!	COMPUTER VIRUS Bonus round 1 pt each
1)	6)	11)	16)	*21)
2)	7)	12)	17)	*22)
3)	8)	13)	18)	*23)
4)	9)	14)	19)	*24)
5)	10)	15)	20)	*25)

Final Question Wager ___/5 Answer: _____

Part 1 Viruses

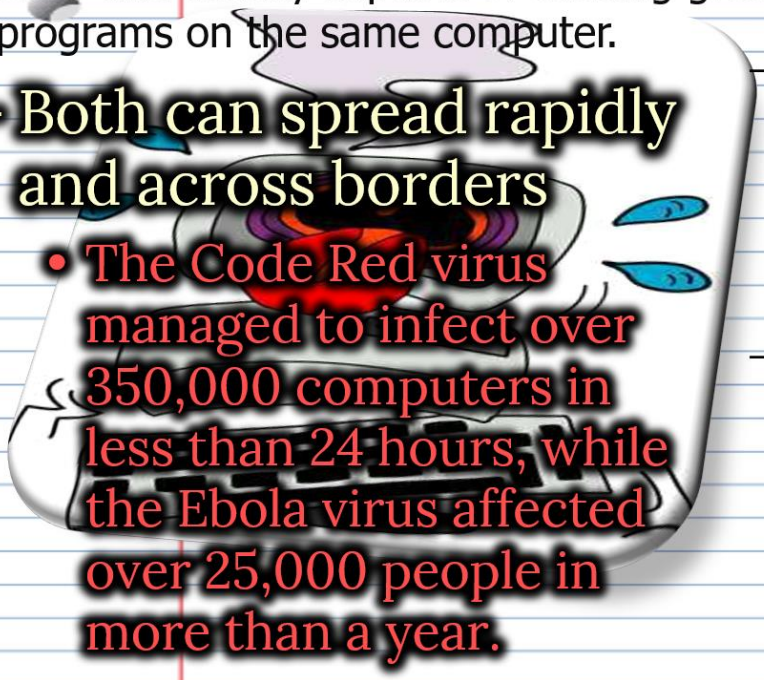
Name:

Part 1 Lesson 1 Introduction

How are a computer virus and a real virus similar?

A computer virus: A software program capable of reproducing itself and usually capable of causing great harm to files or other programs on the same computer.

- Both can spread rapidly and across borders
  - The Code Red virus managed to infect over 350,000 computers in less than 24 hours, while the Ebola virus affected over 25,000 people in more than a year.



- Starting as pranks, computer viruses have evolved to become a major threat to the stability of computer networks worldwide.
- Both are just a string of code. In the coronavirus, it's the RNA genome in a shell; in your messed up computer its just code. In both cases, the code is an "instruction" for the virus

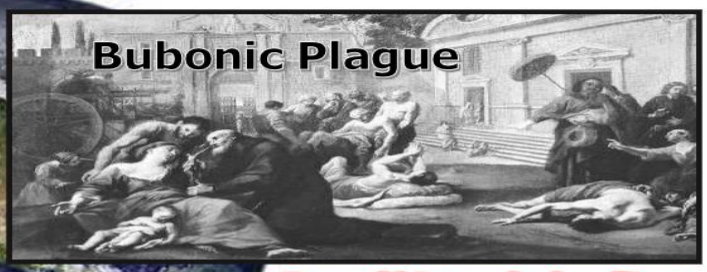
- Both types of viruses represent just a single type of threat in their respective worlds. Along with biological viruses, there are bacteria, fungi, and other germs. Computer viruses are often worms / Malware, etc. The crucial factor is that it is possible to stop the virus at the very beginning, drastically reducing the resulting damage.

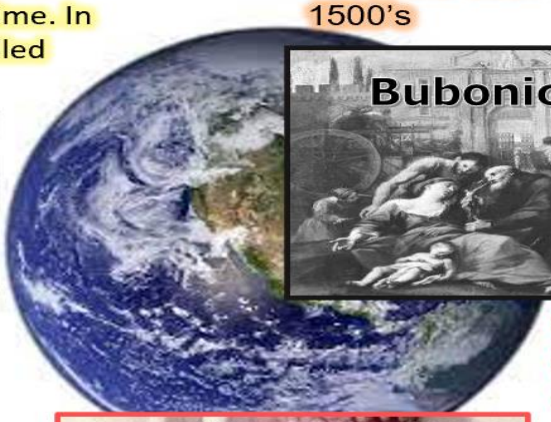
Infectious Diseases will include

-Viruses
-Bacteria
-Parasites

From 1918 to 1919, the Spanish flu infected an estimated 500 million people globally. This amounted to about 33% of the world's population at the time. In addition, the Spanish flu killed about 50 million people.

Black Plague (also called Bubonic Plague) In four years, a bacterium killed 20 to 30 million Europeans, and 58 million in the far east from 1347-1351 and again in the 1500's





Polio
Covid-19
HiV
Cholera
Ebola
Tuberculosis
and many more

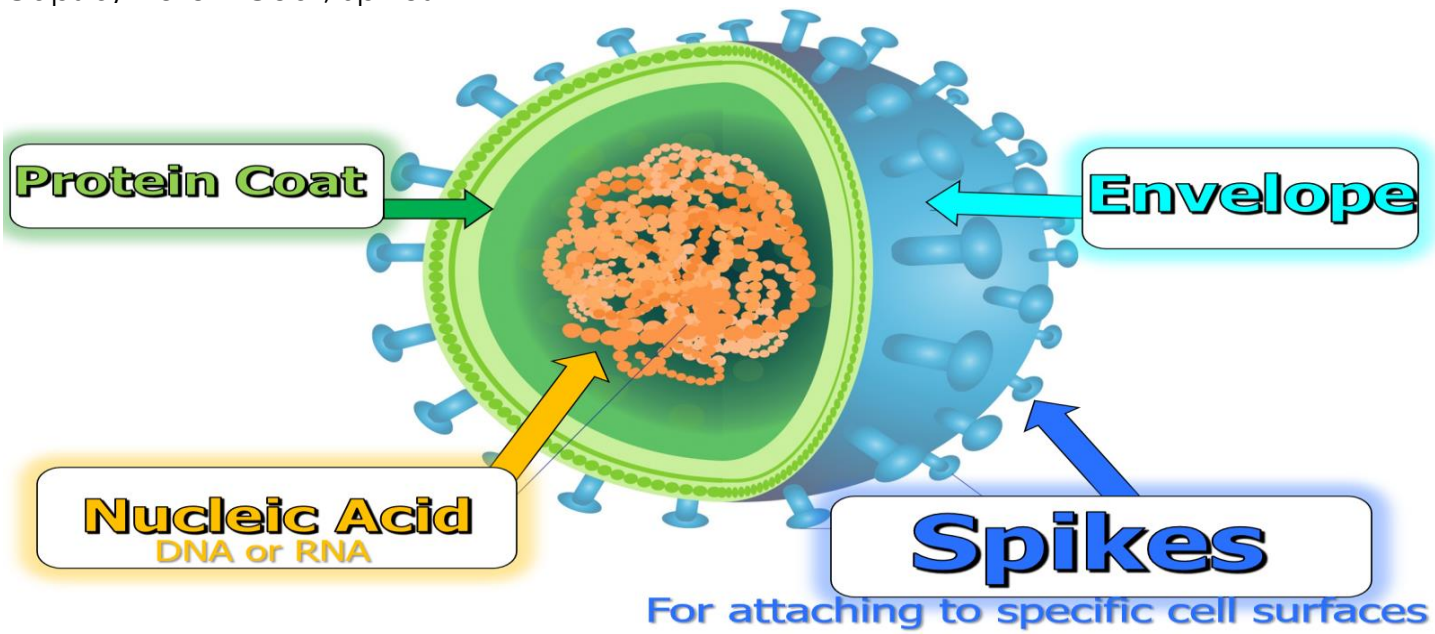
One of history's deadliest diseases, smallpox is estimated to have killed more than 300 million people since 1900 alone. A massive global vaccination campaign put an end to the disease in 1977. It was the first disease ever eradicated.

Viruses may have evolved with the first cells but their evolution is difficult to trace because they don't create fossils.

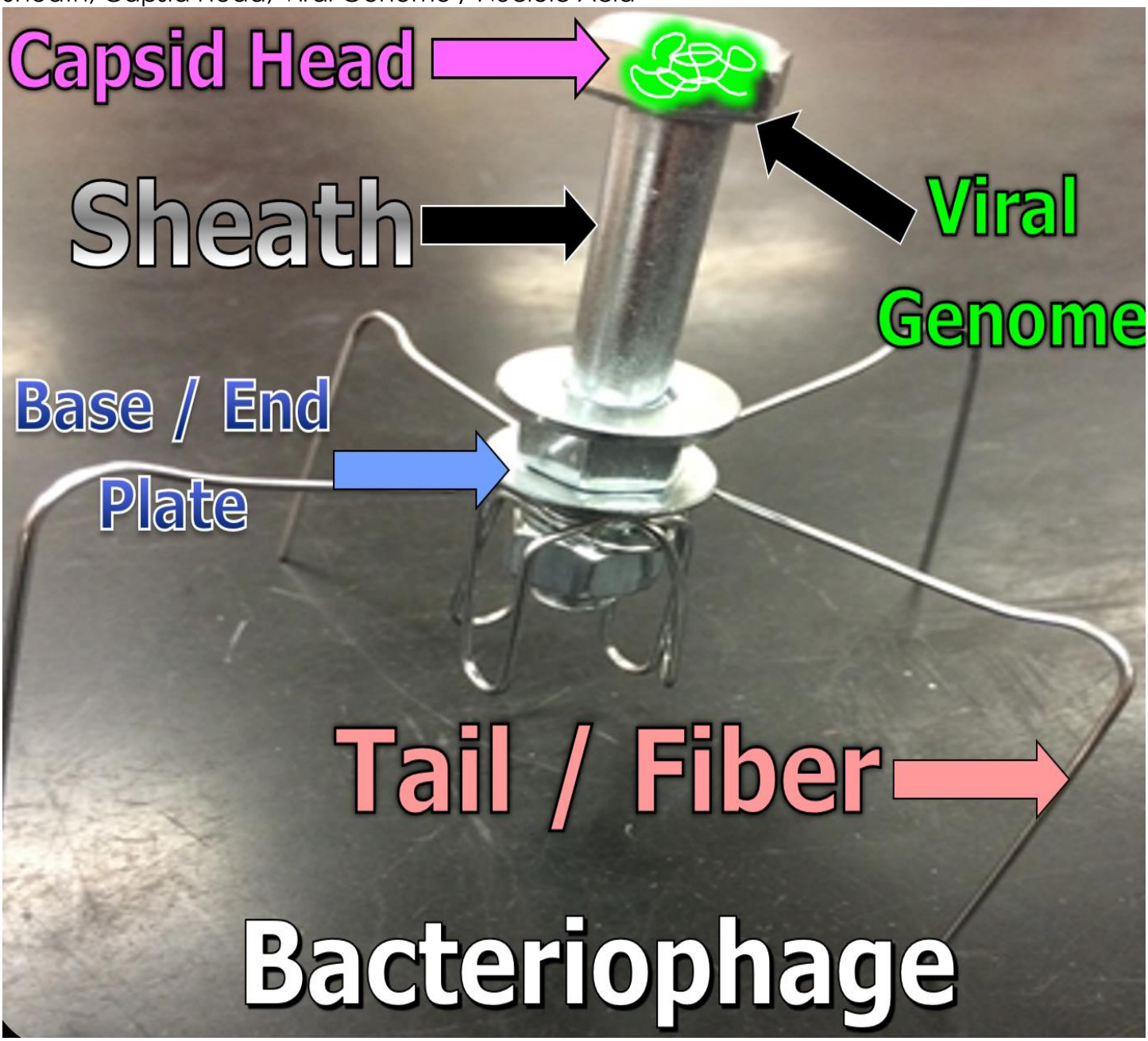
A virus is a nucleic acid (DNA or RNA) enclosed in a protein (capsid) shell or coat.

The capsid coat can have several shapes, and may further be surrounded by an envelope. The envelope is made up of lipids and is usually imbedded with proteins which help the virus recognize its host cell.

Please label the virus below. Extra info is welcome. Word Bank: Envelope, Nucleic Acid, Capsid/Protein Coat, Spikes



Please label the bacteriophage below. Word Bank: Baseplate, Spikes, Tail or Fiber, Collar, Sheath, Capsid Head, Viral Genome / Nucleic Acid



Part 2 Lesson 2 Shapes of Viruses

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The largest, however, measure about 500 nm in diameter and are about 700–1,000 nm in length. Only the largest and most complex viruses can be seen under the compound light microscope at the highest resolution.

Viruses: They can replicate only by invading and taking over other cells.
They lack the cellular machinery for self-reproduction.

Why Viruses are not living?

Viruses are not made of Cells
They have no cell parts / organelles.
They do not grow and develop
They do not respond to the environment

Why Viruses are kind of living but not really.

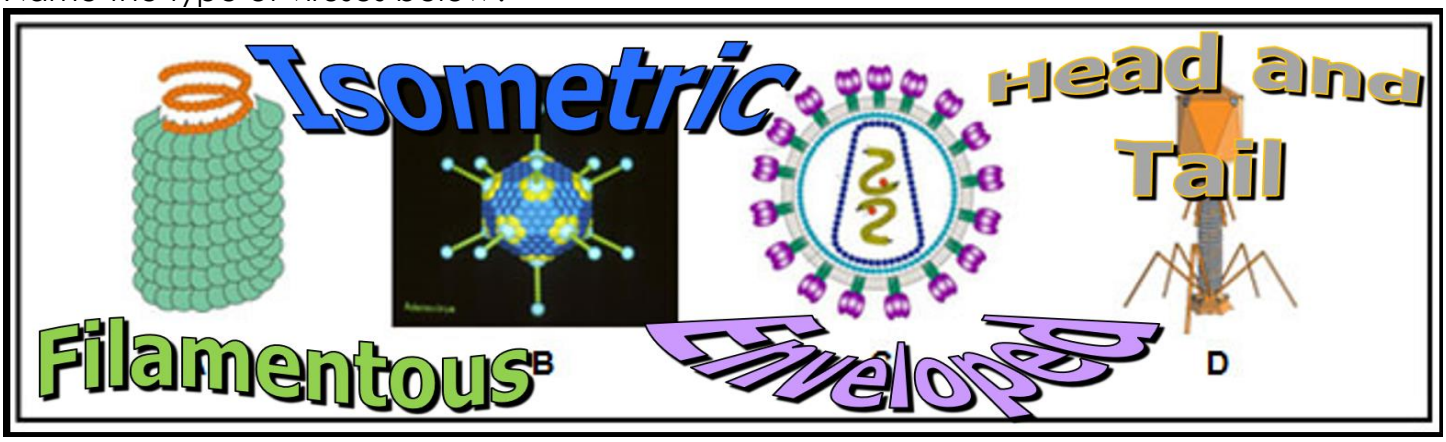
Viruses Replicate, but only by invading living cells, not by themselves
They Evolve / Mutate
Limited Movement

Viruses are not considered living by most scientists.

The shapes of viruses are classified into four groups: filamentous, isometric/Icosahedral, enveloped, and head and tail.

-**Filamentous viruses** are long and cyndrical. Many plant viruses are filamentous, including TMV (tobacco mosaic virus).
-**Isometric (or icosahedral**) viruses have shapes that are roughly spherical, (Roundish) such as poliovirus or herpesviruses.
-**Enveloped viruses** have membranes surrounding capsids. Animal viruses, HIV, are frequently enveloped. Covid-19
-**Head and tail viruses** infect Bacteria. They have a head that is similar to icosahedral viruses and a tail shape like filamentous viruses.

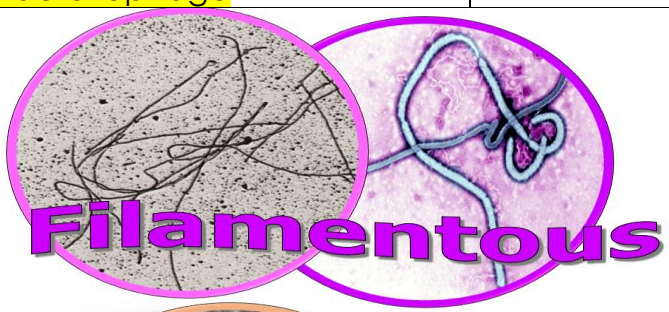
Name the type of viruses below?

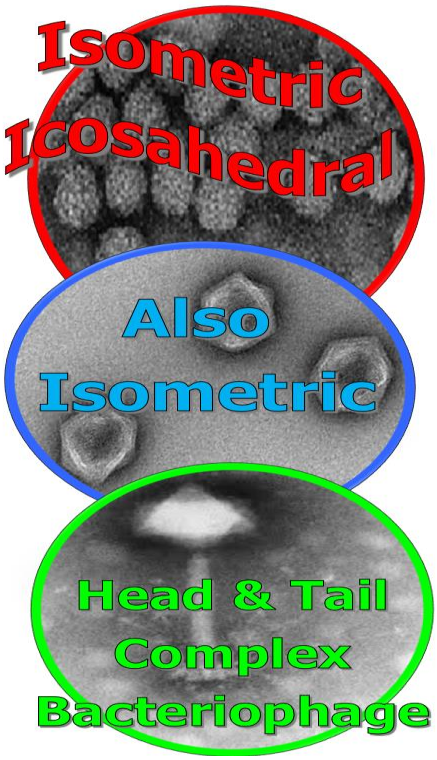


Quiz Wiz 1-10

- Word Bank: Filamentous (rod), Enveloped (round), Isometric or Icosahedral (multi-sided), Head and Tail / Complex (bacteriophage)

1) Enveloped Seasonal Influenza	2) Filamentous Tobacco Mosaic Virus	3) Filamentous Tobacco Mosaic Virus
4) Isometric / Icosahedral Herpes	5) Enveloped	6) Isometric Icosahedral
7) Isometric / Icosahedral	8) Isometric Icosahedral	9) Enveloped
10) Head and Tail Bacteriophage	*11) Strawberry Shortcake	

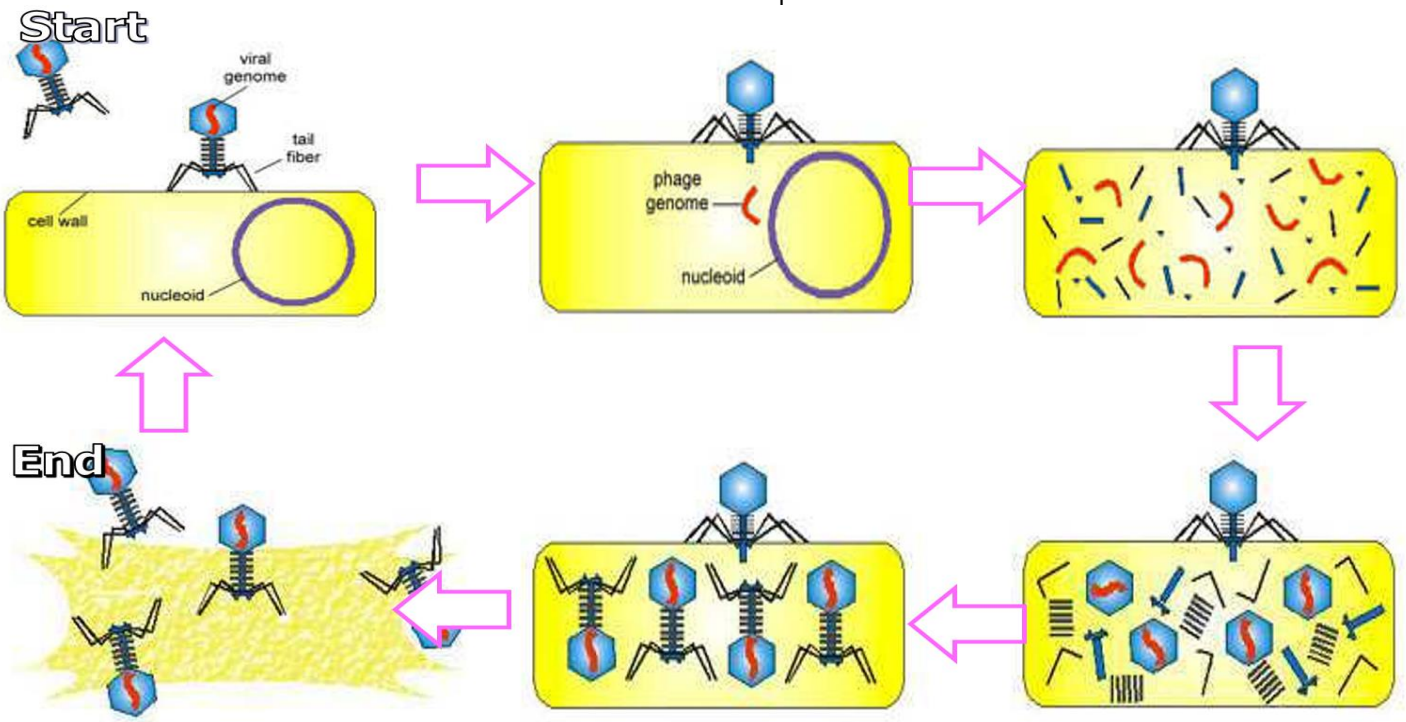




Part 1 Lesson 3 Viral Replication

Virus receptors can be defined as a host cell surface component recognized by the virus "spikes" as a gateway to enter into the cell.

Please animate and describe with some text viral replication in the boxes below

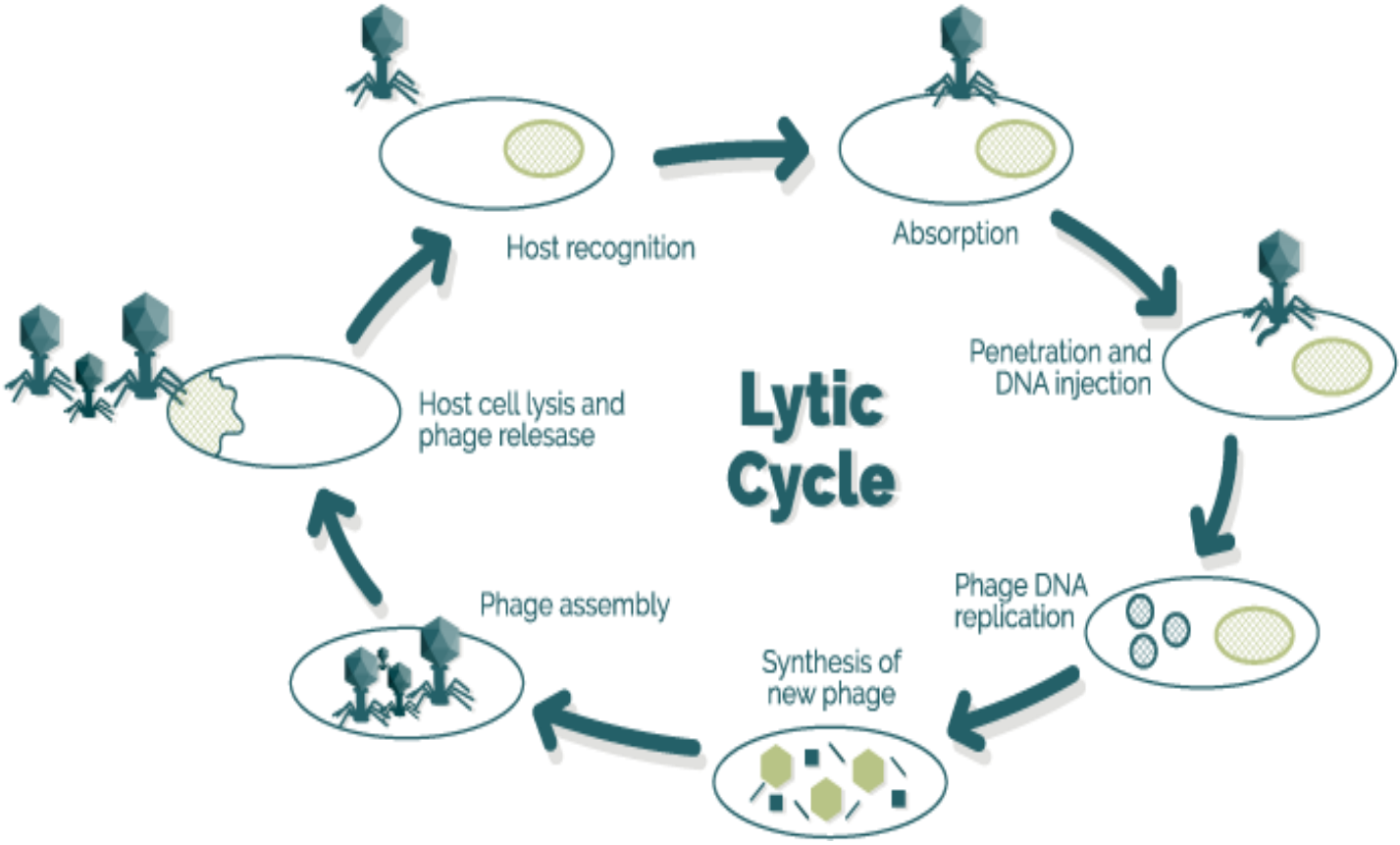


Retrovirus: A single-stranded RNA virus containing an enzyme that allows for a reversal of genetic transcription.

From RNA to DNA rather than the usual DNA to RNA.

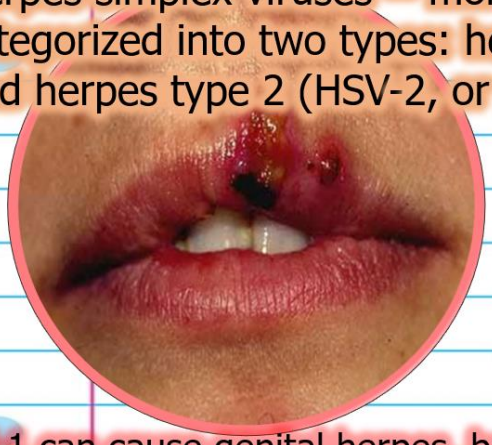
Retroviruses need to use the cellular machinery of the organisms they infect to make copies of themselves.

Lytic viruses: Causes host cell to split / die as virus replicates.



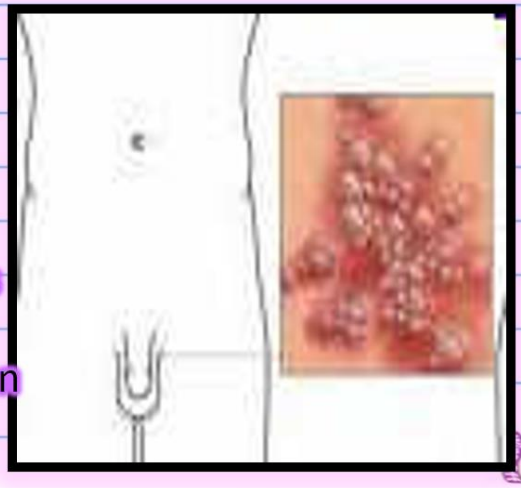
What are these viruses? Are they same? Are they lytic or lysogenic? Let me know below.

Herpes simplex viruses -- more commonly known as herpes -- are categorized into two types: herpes type 1 (HSV-1, or oral herpes) and herpes type 2 (HSV-2, or genital herpes).



Most commonly, herpes type 1 causes sores around the mouth and lips (sometimes called fever blisters or cold sores).

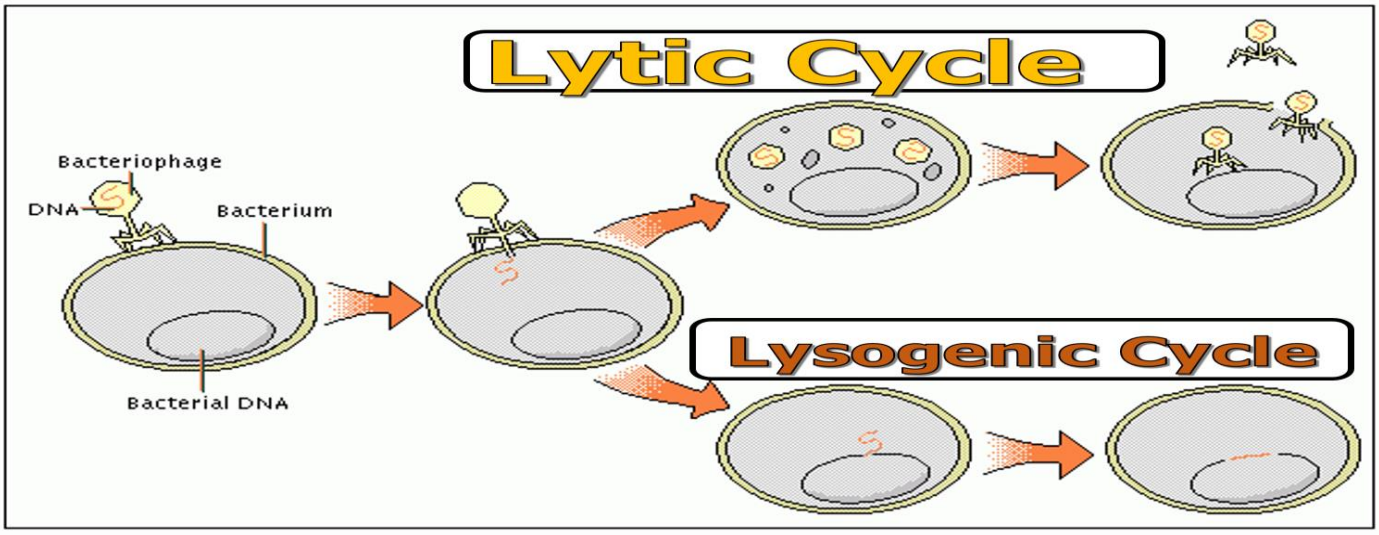
HSV-1 can cause genital herpes, but most cases of genital herpes are caused by herpes type 2. In HSV-2, the infected person may have sores around the genitals or rectum. Although HSV-2 sores may occur in other locations, these sores usually are found below the waist.



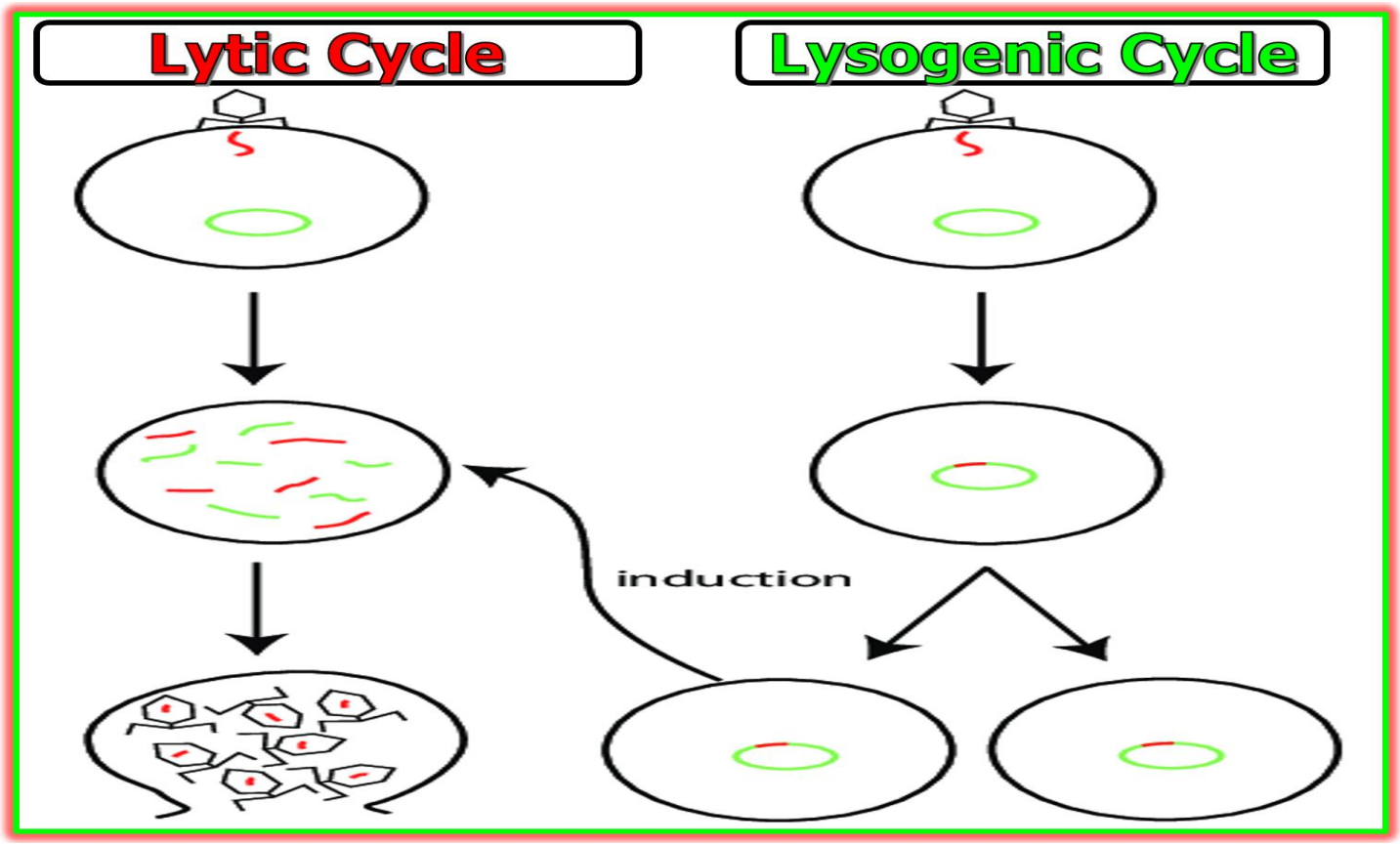
Although there is no cure for herpes, treatments can relieve the symptoms. Medication can decrease the pain related to an outbreak and can shorten healing time.

Lysogenic Virus – A virus that can hide inside your cells DNA until it breaks out (lytic) and then hides again. With you forever.

Which one is the lytic cycle, and which is a lysogenic cycle?



Which one is the lytic cycle, and which is a lysogenic cycle?



Part 1 Lesson 4 Covid-19

A coronavirus any of various RNA containing spherical viruses of the family Coronaviridae with a crown or "corona" of club-shaped spikes on their surface.

Severe Acute Respiratory Syndrome (SARS-CoV)

-SARS was first recognized as a distinct strain of coronavirus in 2003, traced back to the Chinese province of Guangdong in 2002.

-MERS – Middle Eastern Respiratory Syndrome -related coronavirus, or EMC/2012, is a species of coronavirus which infects humans, bats, and camels.

Causes respiratory illness and had a high death rate. 4 out of every 10

On March 11, 2020 the World Health Organization (WHO) characterized COVID-19 as a pandemic.

- Pandemic: A worldwide outbreak of a new disease.

The virus is believed to have arisen from a wet market in Wuhan China.

- A wet market sells fish, shellfish, live animals, and other animal products.

Worldwide Death toll exceeding 6.4 million as of 7/30/2022 -WHO

Corona Virus Disease 2019 (Covid-19)

What is a coronavirus?

A coronavirus any of various RNA containing spherical viruses of the family Coronaviridae with a crown or "corona" of club-shaped spikes on their surface.

- Coronaviruses are a type of virus. There are many different kinds (SARS, MERS, Common Cold), and some cause disease.
  - A newly identified type has caused a recent outbreak of respiratory illness now called COVID-19 that started in China.

How does it spread?

The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within a few meters).
- Through respiratory droplets produced when an infected person coughs, or sneezes, or breathes.

What is the prevention for this disease?

To help protect yourself and others from COVID-19:

Get vaccinated and stay up to date on your COVID-19 vaccines.

Everyone ages 2 years and older should properly wear a well-fitting mask indoors in public in areas where the COVID-19 Community Level is high, regardless of vaccination status.

Avoid poorly ventilated spaces and crowds.

Test to prevent spread to others.

Wash your hands often. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol.

Cover coughs and sneezes.

Clean high touch surfaces regularly or as needed and after you have visitors in your home. If someone is sick or has tested positive for COVID-19, disinfect frequently touched surfaces.

Monitor your health daily.

Self care:

If you have possible or confirmed COVID-19:

Stay home except to get medical care.

Monitor your symptoms.

Get tested as soon as possible after your symptoms start.

What are the symptoms of Covid-19? Who's at the most risk?

Symptoms may appear 2-14 days after exposure to the virus. People with these symptoms may have COVID-19:

Fever or chills

Cough

Shortness of breath or difficulty breathing

Fatigue

Muscle or body aches

Headache

New loss of taste or smell

Sore throat

Congestion or runny nose

Nausea or vomiting

Diarrhea

Look for emergency warning signs for COVID-19. If someone is showing any of these signs, seek emergency medical care immediately:

Trouble breathing

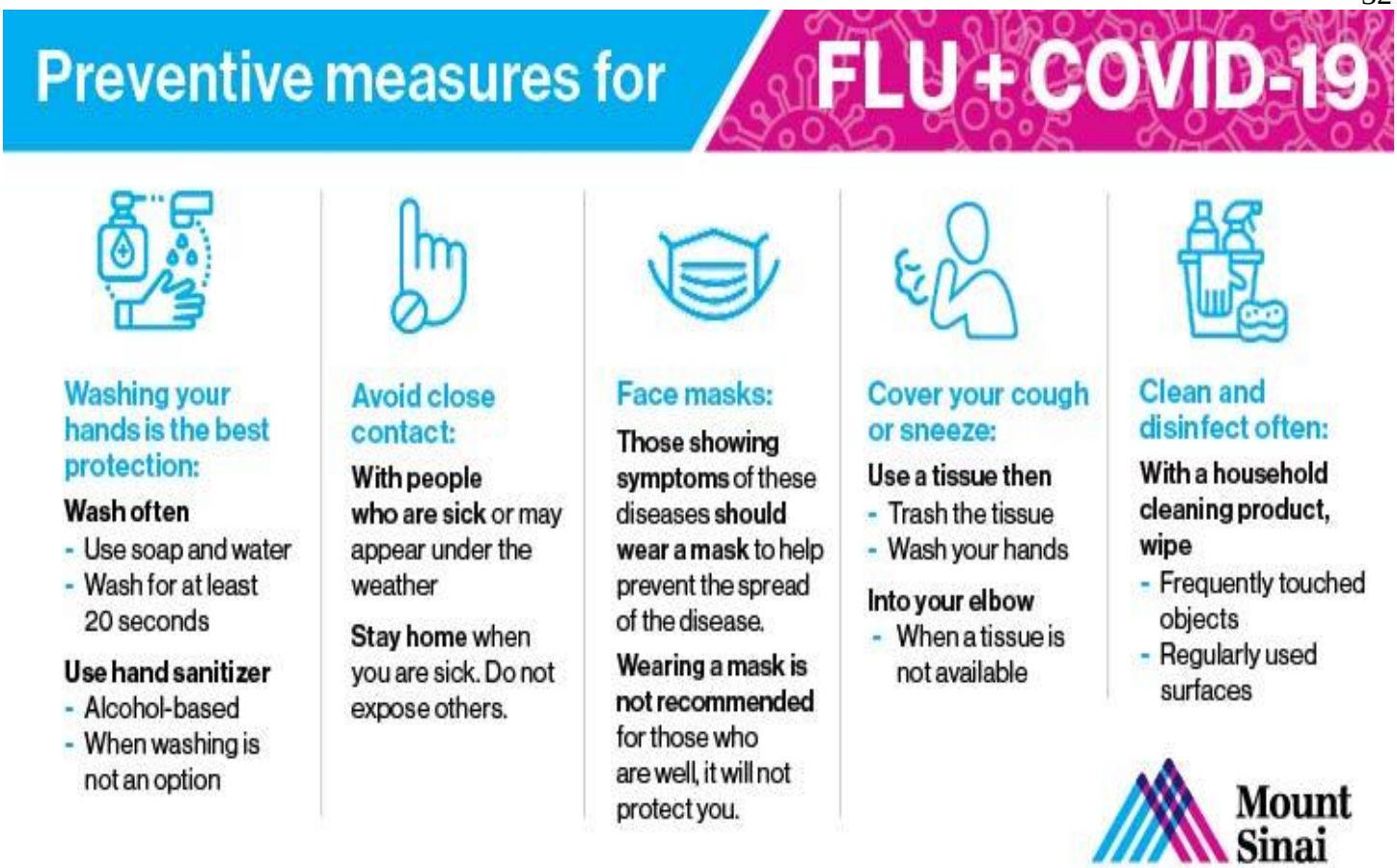
Persistent pain or pressure in the chest

New confusion

Inability to wake or stay awake

Pale, gray, or blue-colored skin, lips, or nail beds, depending on skin tone

Get rest and stay hydrated. Take over-the-counter medicines, such as acetaminophen, to help you feel better. Call ahead before visiting your doctor. If you are sick, wear a well-fitting mask.	
What is stigma and resilience? How does it relate to Covid-19 Public Health emergencies are stressful times and can cause anxiety, which can lead to social stigma toward people, places, and things. Stigma and discrimination can occur when people associate a disease such as Covid-19 with with a population, nationality, or group. Stigma can also occur after a person has been recovered from Covid-19. Know the facts and avoid creating Stigmas. • Stigma affects the emotional or mental health of stigmatized groups and the communities they live in. – Stopping stigma is important to making communities and community members resilient and overcome this stress.	What treatments are available? What should you do if you're sick? Medications to treat COVID-19 must be prescribed by your healthcare provider and started as soon as possible after diagnoses to be effective. Contact a healthcare provider right away to determine if you are eligible for treatment, even if your symptoms are mild right now. Some treatments might have side effects or interact with other medications you are taking. To find out if medications to treat COVID-19 are right for you, you have options: Talk to your healthcare provider Visit a test to treat location Contact your local community health center or health department Your healthcare provider also may recommend the following to relieve symptoms and support your body's natural defenses Taking medications, like acetaminophen or ibuprofen, to reduce fever. Drinking water or receiving intravenous fluids to stay hydrated. Getting plenty of rest to help the body fight the virus.



Please create a one page google draw with supportive text that informs the public about the Coronavirus Disease 2019 (Covid-19). Your one page public service announcement should have visuals, word art, supportive text, be informative and accurate. It should educate someone about the following.

- TITLE WITH THE NAME OF THE DISEASE
- Then break up the questions below and place them around your draw with visuals. Make it visually appealing and informative but a quick read. Limit your text to what is most important.
- -What is the Coronavirus Disease 2019?
- -How does it spread?
- -What is the prevention for this disease?
- -What are the symptoms?
- -What should you do if you're sick?
- -Works Cited at the bottom – Please try and visit the CDC (Centers for Disease Control) or WHO (World Health Organization).

Part 1 Lesson 5 Ebola Virus Disease Case Study

Ebola Background Information.

Ebola Virus Disease (EVD), is a severe, often fatal illness in humans.

- 25%-90% fatal and depends on the strain.

Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever, is a rare but severe, often fatal illness in humans.

There are 5 species of virus that have been identified: Zaire, Bundibugyo, Sudan, Reston and Taï Forest. The Zaire strain is the most deadly and this is the one in the 2014 outbreak.

Ebola Transmission Information

Bats are believed to be the natural host of the Ebola virus.

From bats, the virus can spread to other animals and then to humans.

- Contact with infected primates (Bushmeat) is one way the virus is believed to enter humans.

Ebola spreads through human-to-human contact.

- Direct contact with blood, secretions, organs or other bodily fluids of infected people. Also contact with surfaces. (soiled clothing and bedding).

Symptoms

The incubation period is 2 to 21 days after you have contracted the virus before symptoms may show.

- Humans are not infectious until they develop symptoms.
- Very sudden fever and fatigue, muscle pain, headache and sore throat.
- Severe vomitting, diarrhea, rash, kidney damage, and liver function, internal and external bleeding, organ damage.
- Bleeding from the anus, nose, and all orifices.
- Hemorrhagic rash

Diagnosis is difficult at first because the fever and fatigue are like a lot of other tropical Diseases.

- Samples are an extreme biohazard risk.

Treatment.

- Rehydration with oral or intravenous fluids.
- Treatment in Liberia vs treatment in the U.S.A are very different.
- Some approved vaccines are available

Outbreak Control

- Need to manage each case, surveillance, laboratory services, safe burials, social awareness.

Which is a bogus statement about Ebola? A.) The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission. B.) The Ebola virus causes serious illness which is often fatal if untreated. C.) The incubation period (the time from infection) with the virus to onset of symptoms is 1 to 3 days. D.) Supportive care is rehydration with fluids- and treatment of specific symptoms.	Which is a bogus statement about Ebola? A.) Gloves, full protective facemask, gowns, and all precautions should be used to help in the treatment. B.) Clothing and bedding from an infected person is not contagious. C.) Diagnosis is difficult at first because the fever and fatigue are like a lot of other tropical diseases. D.) Humans are not infectious until they develop symptoms. E.) People can continue to spread the virus for up to 7 weeks in their body fluids if the virus is present.

Which is a bogus statement about Ebola? A.) There are 5 species of virus that have been identified: Zaire, Bundibugyo, Sudan, Reston and Taï Forest. B.) Ebola spreads from direct contact with blood, secretions, organs or other bodily fluids of infected people. Also contact with surfaces (soiled bedding and clothing). C.) Early symptoms are a very sudden fever and fatigue, muscle pain, headache and sore throat. D.) Humans are highly infectious before they develop any symptoms.	Which is a bogus statement about ways to avoid getting Ebola? A.) Wash hands frequently or use an alcohol-based hand sanitizer. B.) Avoid contact with blood and body fluids of any person, particularly someone who is sick. C.) Do not handle items that may have come in contact with an infected person's blood or body fluids. D.) Do not touch the body of someone who has died from Ebola. E.) It's okay to eat bats and nonhuman primates (bushmeat) or their blood and fluids.
Which is a bogus statement about ways to avoid getting Ebola? A.) Wash hands frequently or use an alcohol-based hand sanitizer. B.) Avoid contact with blood and body fluids of any person, particularly someone who is sick. C.) The 2014-2016 Ebola outbreak has been the only time Ebola has entered the human population. D.) Do not touch the body of someone who has died from Ebola. E.) It's not safe to eat bats and nonhuman primates (bushmeat) or their blood and fluids	Think Question: In what ways would an outbreak in the US be different from the outbreak in West Africa? Hopefully an outbreak in the United States would be managed well. Alerts and ways to avoid contracting would be given. Medical treatments as well as vaccines could be made available. Hopefully people will not spread misinformation and panic.

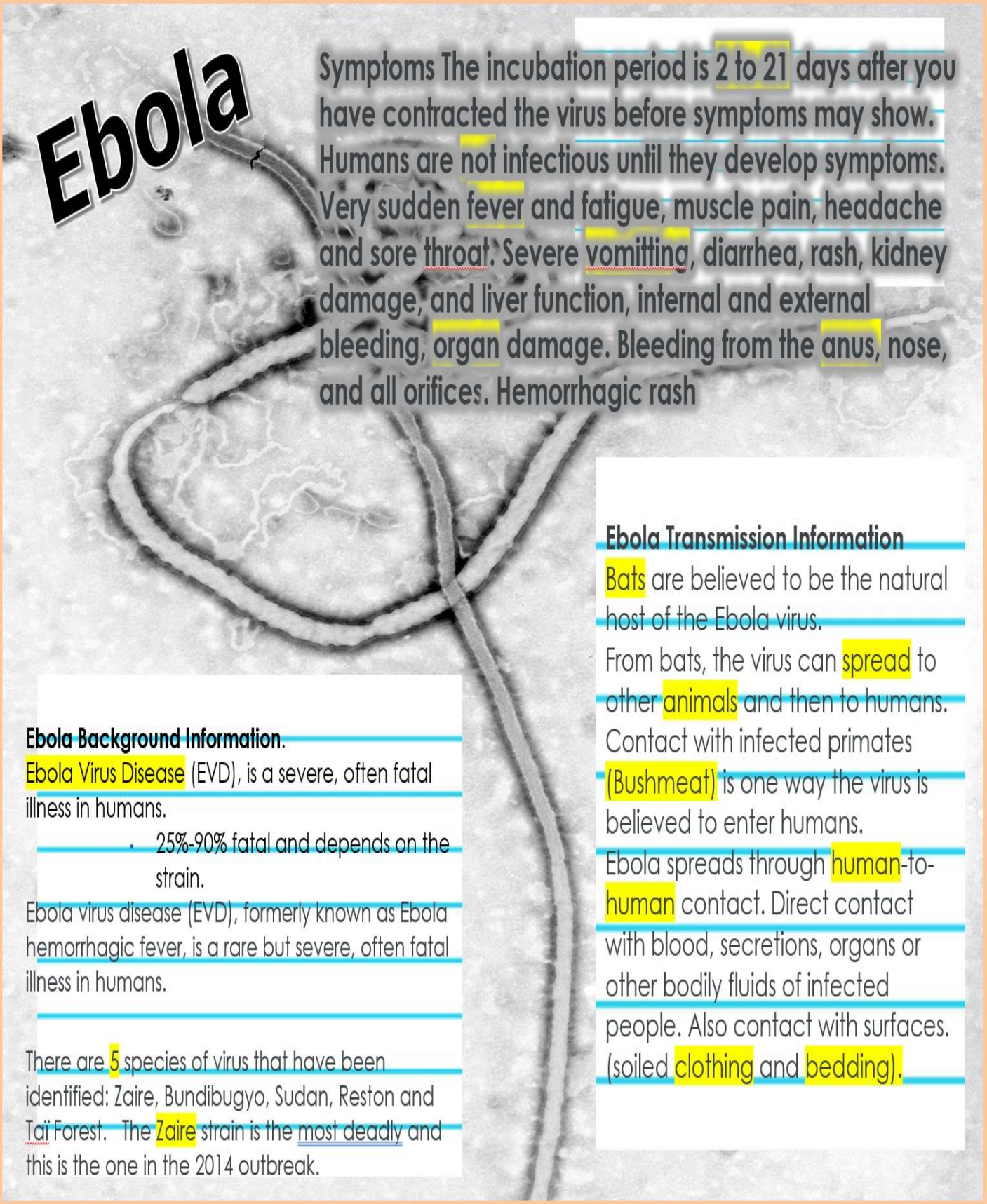
Ebola Videos

Monkey Meat and Ebola Outbreak in Liberia (Start of Outbreak)
https://www.youtube.com/watch?v=XasTcDsDfMg&t=699s

Video Link! The Fight Against Ebola (29 minutes

- https://www.youtube.com/watch?v=ANUI4uT3xJI
- Please Preview (This is up close)

Notes During Videos



Symptoms The incubation period is 2 to 21 days after you have contracted the virus before symptoms may show. Humans are not infectious until they develop symptoms. Very sudden fever and fatigue, muscle pain, headache and sore throat. Severe vomitting, diarrhea, rash, kidney damage, and liver function, internal and external bleeding, organ damage. Bleeding from the anus, nose, and all orifices. Hemorrhagic rash

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Ebola spreads through human-to-human contact. Direct contact with blood, secretions, organs or other bodily fluids of infected people. Also contact with surfaces. (soiled clothing and bedding).

Describe Western Africa? How is it different from developed nations? Western Africa was different than the United States. There wasn't a strong health care system, way to communicate information, and government to implement a strong plan of action. Roadways, ambulance services, were challenged. There was a general distrust of the government.	How is it suspected that Ebola makes the jump from the rainforest into the human population? It is believed to jump from the Lofa forest into the human population possibly through the bushmeat trade. People either get ebola from the animal, meat, or during the food preparation.
What problems is West Africa dealing with that makes fighting Ebola more difficult? Civil unrest, lack of healthcare facilities, lack of medicines, and lack of communication.	Questions that you have…

Create public service message in the space below to educate people before and during an Ebola outbreak.

Describe Western Africa? How is it different from developed nations? The video / outbreak occurred in Liberia. The city had limited health care workers, hospitals, and seemed to be in a state of chaos and confusion. The streets, buildings, and systems of communication were in disrepair.	How is it suspected that Ebola makes the jump from the rainforest into the human population? Ebola was believed to have existed in the Lofa Forest and made the jump into the human population through the preparation or consumption of bushmeat.
What problems is West Africa dealing with that makes fighting Ebola more difficult? The people do not trust the government or other agencies. There is a lack of healthcare and treatment facilities, ambulances, and overall system of communication.	Questions that you have… This is a scary disease and it occurred in a part of the world that posed some significant challenges. How might this outbreak be different in a more developed country?

Part 1 Lesson 6 Zika, Wrap Up, and Virus Case Study

Zika Virus. Spread mostly by the bite of an infected *Aedes* species mosquito.
- Can also be passed through sexual transmission.

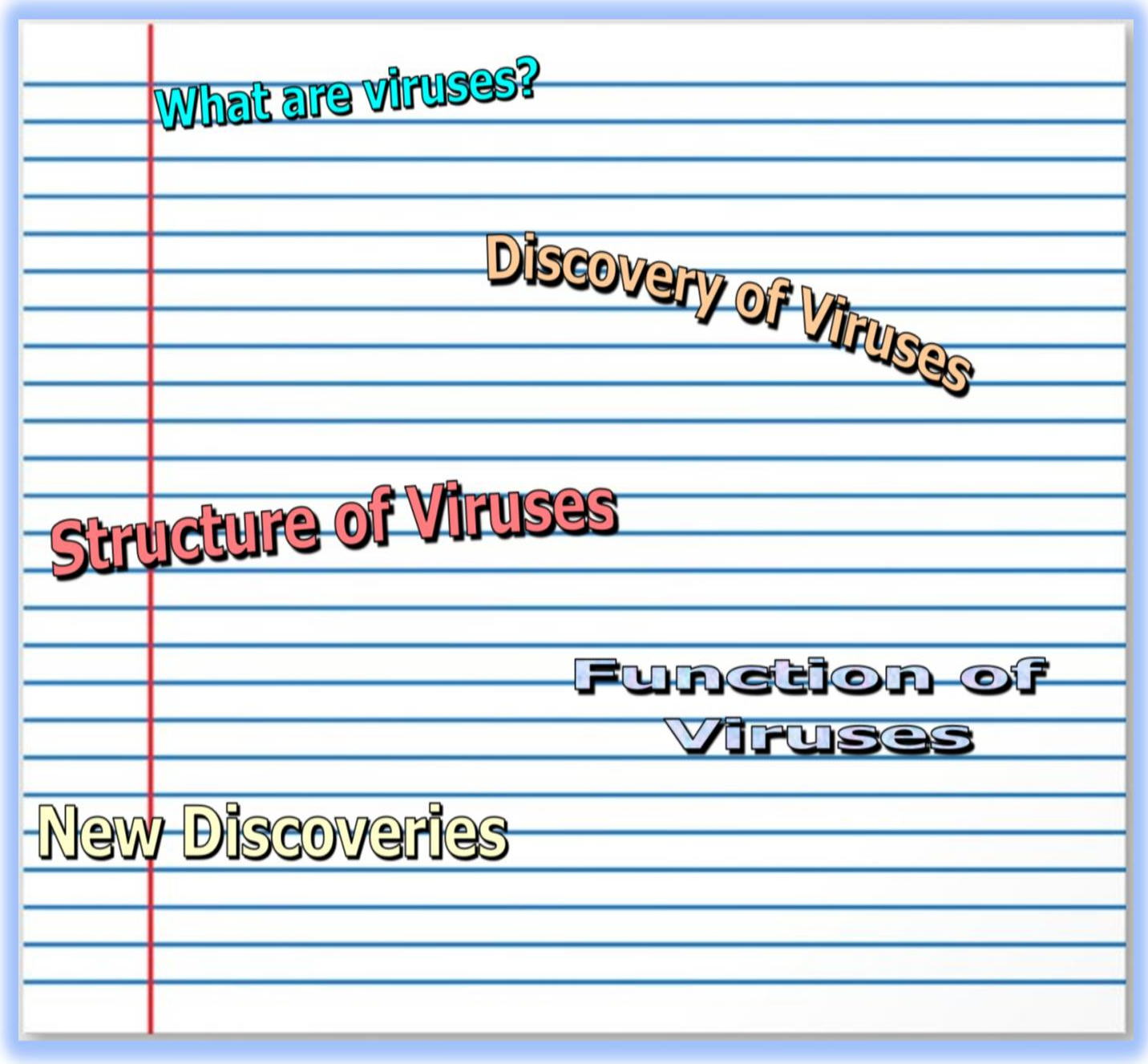
Zika is a Flaviviridae virus.
- Other common Flaviviridae viruses include….
- Dengue Fever
- West Nile Virus
- Yellow Fever

Most people will have only mild symptoms or none at all. Common symptoms of Zika are…
- Fever
- Rash
- Joint Pain
- Conjunctivitis (red eyes)

Zika can be passed from a pregnant woman to her fetus.
- Infection during pregnancy can cause a birth defect of the brain called microcephaly in the fetus.

No vaccines exist and prevention is avoiding mosquito bites.
- Especially if pregnant.
- Also avoid unprotected sex

Reading Article Wrapping Up Viruses
- https://www.livescience.com/53272-what-is-a-virus.html



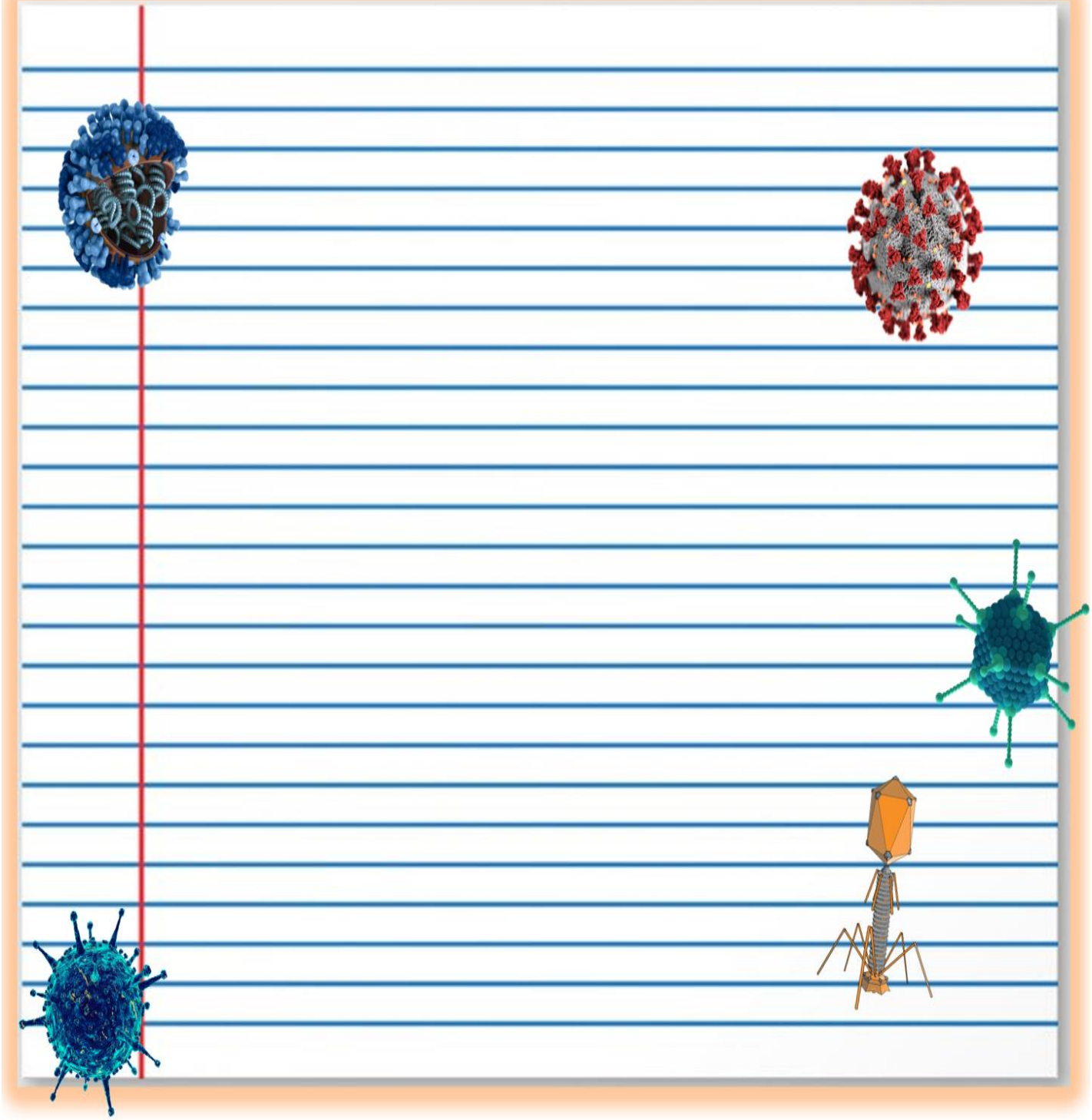
Case study a virus?

Research a virus in detail, including how they act, transmission, and how they can affect people. Conclude with treatments and vaccines if possible. Be prepared to share your findings to a peer

Smallpox, Rhinovirus, Measles, Mumps, Rubella, Chickenpox, Hepatitis, herpes simplex (HSV), herpes complex, polio, rabies, hantavirus, COVID-19, SARS-CoV, SARS-CoV-2, MERS-CoV, dengue fever, Marburg Virus, Influenza, Rotavirus, HPV.

- List of all human viruses and associated pathologies.
- https://viralzone.expasy.org/678

ANSWER VARY BASED ON THE DISEASE CASE STUDIED

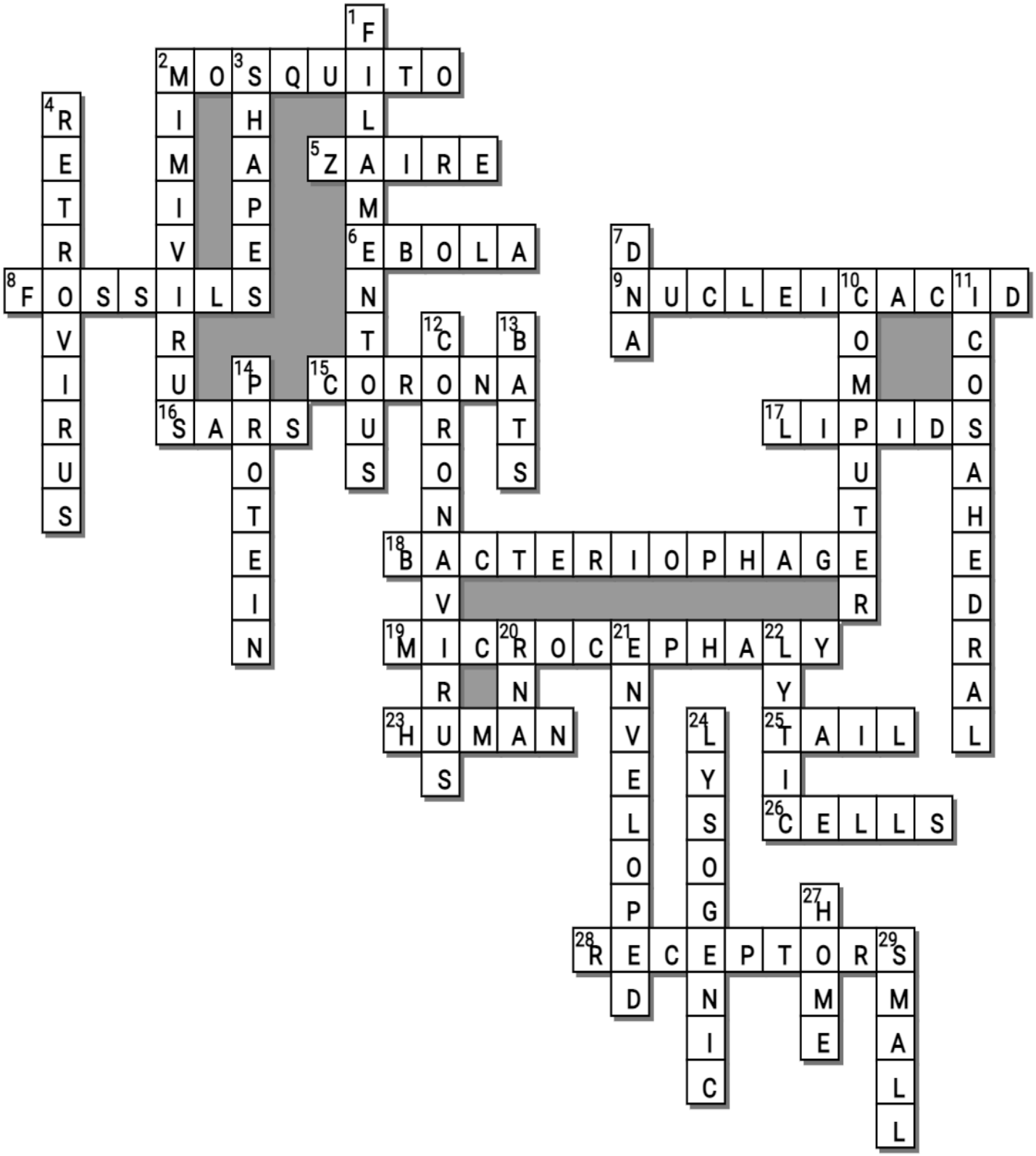


Across

2. Zika Virus. Spread mostly by the bite of an infected Aedes species _____
5. There are 5 species of Ebola virus that have been identified: Zaire, Bundibugyo, Sudan, Reston and Taï Forest. The _____ strain is the most deadly and this is the one in the 2014 outbreak.
6. _____ virus disease (EVD), is a severe, often fatal illness in humans.
8. Viruses may have evolved with the first cells but their evolution is difficult to trace because they don't create _____?
9. A virus is a N_____A_____ (DNA or RNA) enclosed in a protein (capsid) shell or coat.
15. A coronavirus any of various RNA-containing spherical viruses of the family Coronaviridae. with a crown or "_____" of club-shaped spikes on their surface.
16. Severe Acute Respiratory Syndrome (_____-CoV). It was first recognized as a distinct strain of coronavirus in 2003, traced back to the Chinese province of Guangdong in 2002.
17. The envelope is made up of _____ and is usually imbedded with proteins which help the virus recognize its host cell.
18. A _____, also known informally as a phage, is a virus that infects and replicates within bacteria and archaea. The term was derived from "bacteria" and the Greek φαγεῖν,meaning "to devour"
19. Zika can be passed from a pregnant woman to her fetus. Infection during pregnancy can cause a birth defect of the brain called _____ in the fetus.
23. Ebola spreads through _____-to-human contact.
25. Head and _____ viruses infect bacteria. They have a head that is similar to icosahedral viruses and a tail shape like filamentous viruses.
26. Viruses: They can replicate only by invading and taking over other _____..
28. Virus _____ can be defined as a host cell surface component recognized by the virus "spikes" as a gateway to entry into the cell.

Down

1. _____ viruses are long and cylindrical. Many plant viruses are filamentous, including TMV (tobacco mosaic virus).
2. The _____ and Megavirus are extremely large and complex viruses.
3. The capsid coat can have several _____, and may further be surrounded by an envelope.
4. A single-stranded RNA virus containing an enzyme that allows for a reversal of genetic transcription.
7. A virus is a Nucleic Acid (_____ or RNA) enclosed in a protein (capsid) shell or coat.
10. A _____ virus: A software program capable of reproducing itself and usually capable of causing great harm to files or other programs on the same computer.
11. Isometric (or _____) viruses have shapes that are roughly spherical, such as poliovirus or herpesviruses.
12. A _____ any of various RNA-containing spherical viruses of the family Coronaviridae. with a crown or "corona" of club-shaped spikes on their surface.
13. _____ are believed to be the natural host of the Ebola virus.
14. A virus is a Nucleic Acid (DNA or RNA) enclosed in a _____ (capsid) shell or coat.
20. A virus is a Nucleic Acid (DNA or _____) enclosed in a protein (capsid) shell or coat.
21. _____ viruses have membranes surrounding capsids. Animal viruses, HIV, are frequently enveloped.
22. _____ viruses: Causes host cell to split / die as virus replicates.
24. _____ Viruses – A virus that can hide inside your cells DNA until it breaks out (lytic) and then hides again. With you forever.
27. Stay home when sick means that you should… Stay _____ When Sick!
29. Most viruses vary in diameter from 20 nanometres (nm; 0.0000008 inch) to 250–400 nm; they're extremely _____!!



----------teacher can remove this word bank to make puzzle more challenging----------

Possible Answers

FOSSILS, BATS, CELLS, CORONA, DNA, EBOLA, ENVELOPED , FILAMENTOUS , HOME, HUMAN, LYSOGENIC, LYTIC, MIMIVIRUS , PROTEIN, RNA, RETROVIRUS, SARS, SHAPES, SMALL, TAIL, ZAIRE, BACTERIOPHAGE, COMPUTER, CORONAVIRUS, ICOSAHEDRAL, LIPIDS, MICROCEPHALY, MOSQUITO., NUCLEIC ACID, RECEPTORS

Part 1 Review Game Lesson 7

Name:

1-20 = 5 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

IT's GONE VIRAL	SHAPE-UP	IT's NOT ALIVE	OH-NO!	COMPUTER VIRUS Bonus round 1 pt each
1) Letter C.) Capsid	6) Enveloped H1N1	11) Letter F and C were switched	16) C.) Trans-membrane / protein receptor	*21) The Matrix
2) Letter A	7) Filamentous Tobacco Mosaic Virus	12) A.) Lytic Viruses	17) DNA / RNA	*22) Tron
3) C.) Invading and taking over other cells.	8) Head and Tail Bacteriophage	13) C.) Herpes Virus – Lysogenic	18) A=Lytic B=Lysogenic	*23) Oceans Eleven
4) C.) Limited Movement.	9) Icosahedral Isometric	14) D.) Never	19) B.) Clothing and bedding from an infected person is highly contagious.	*24) Mission Impossible
5) Bacteria	10) Enveloped	15) DNA or RNA	20) Spanish Flu	*25) iRobot

Final Question Wager ____ /5 Answer: The Zika Virus