

Epidemic/Pandemic

1. The human immunodeficiency virus (HIV) causes AIDS. The first known human cases AIDS were in Africa in the late 1950s. Since then, tens of millions of people have died from the disease, and tens of millions more people all over the world are infected.

Thinking about the concepts in this paragraph write a two to three sentence continuation using the words isolation, outbreak, epidemic, and pandemic.

At first, HIV was an isolated outbreak of disease in Africa. However, since the 1950's cases of HIV began to grow rapidly changing from an epidemic to a pandemic.

2. What best explains why a contagious disease is likely to become an epidemic?

B/c it has the ability to be transferred from person to person.

3. Identify the major distinction between an epidemic and a pandemic?

Epidemics are smaller outbreaks of disease. Pandemics are worldwide outbreaks

4. Place the words provided in the word bank in the appropriate columns as they would relate to Pandemics and Epidemics

Prevention	Cause	Word Bank
<u>Access to Pharmaceuticals</u>		Access to Pharmaceuticals <u>1</u>
<u>Immunization</u>	<u>Globalized Shipping</u>	Globalized Shipping <u>2</u>
<u>Good Sanitation</u>	<u>Bad Sanitation</u>	Immunization <u>3</u>
<u>Vaccination</u>	<u>Transportation</u>	Sanitation <u>4</u>
	<u>World Markets</u>	Transportation <u>5</u>
		Vaccination <u>6</u>
		World Markets <u>7</u>

5. ***Epidemic measles outbreaks were once common, but their occurrence has greatly diminished. What has caused this change in the number of measles cases?

Vaccine is effective

Biotechnology

6. Name two career field most closely related to biotechnology?

Pharmacist, (Agriculture or Health/Medicine Careers.)

7. Discuss important concerns regarding the ethical issues in biotechnology?

8. DNA analysis performed by a forensic scientist on blood found at a crime scene is compared to the DNA analysis of four suspects as shown below. Circle the suspect most likely present at the crime scene?



9. Give two examples of how crops and their use have been improved through biotechnology:

pest resistance higher yield (amount)
 disease resistance frost resistant
 increased nutrition

10. Select the best end user for the Biotechnological activities listed:

Place Letter Here:	Biotechnological Activity	End User
B	1. alternative fuel options	<input checked="" type="checkbox"/> A. Medical Field
D	2. disease-resistant crops	<input checked="" type="checkbox"/> B. Automotive Industry
A	3. new medicines from bacteria	C. Environmental Specialist
C	4. enzymes to eliminate pollutants	<input checked="" type="checkbox"/> D. Agricultural Enterprises

11. Describes the technique used for genetic engineering:

placing a specific gene from another organism into the DNA of a different organism to have

12. Explain how altering crops to become insect-resistant is a biotechnological activity:

improves crop yield Gene expressed.

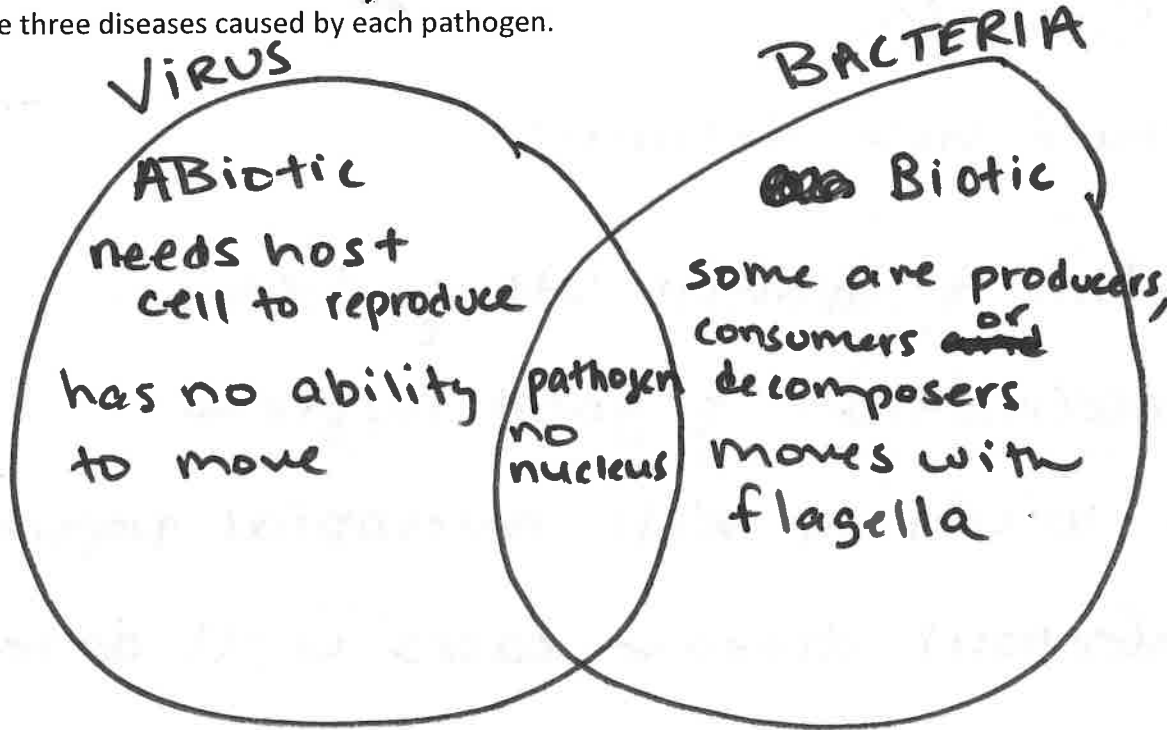
13. Identify the below as either a negative or a positive result of biotechnology applications in our future:

N Increased cost N Increased use of pesticides
P Increased yield (amount) N Increased use of preservatives

14. Explain how long-term health effects are an ethical issue surrounding using genetically modified foods:
Some people think GMO's are not "natural"

Microbes

15. Make a Venn diagram comparing and contrasting virus and bacteria. Be sure to include in your diagram discussion about the actual microbes, the reproduction process, the treatment and prevention for each and name three diseases caused by each pathogen.



16. A scientist examining a specimen with a microscope sees that it is a single-celled microorganism. What TWO type of organisms could the scientist be observing? What makes each unique and different from one another?

Protist - has a nucleus (eukaryote)

Bacteria - no nucleus (prokaryote)

17. Complete the chart for factors that would the impact the spread of infectious disease:

Favor the spread of disease	Reduce the spread of disease
transportation	isolation
bad hygiene	Sanitation
contact with people	pharmaceuticals

18. Diseases that can be transmitted between organisms are infectious.

19. An amoeba frequently causes an infection in hikers who drink untreated water. What precaution should hikers take while hiking?

boil / filter water

20. What is the easiest way for a person to prevent microbial infections?

Vaccination + good hygiene.

Treatment & Prevention

21. Why are researchers working to improve antimicrobial drugs? Why is antimicrobial resistance a serious public health issue?

B/c microbes are evolving where current drugs no longer are effective

22. A doctor prescribed an antibiotic to treat an illness. What type of illness did the doctor most likely treat?

Bacteria.

23. If a child scrapes his foot on a piece of rusty metal, it is important to get medical treatment because ~~the~~

it could cause tetanus

24. Some health care professionals recommend children use insect repellent before going outside. Using insect repellent is a good way to keep the insects from

biting & transmitting disease.

25. What helps humans to resist an infectious disease?

vaccination & good hygiene.

26. Many school districts are placing dispensers of hand sanitizer in classrooms and computer labs. What is the most likely purpose of this practice?

to lower or kill microbial population

27. What will most likely occur when the quality of sanitation in an area improves?

infectious disease cases will decrease.

Diseases

28. What is the main risk associated with being a disease carrier?

transmitting disease to another

29. What best describes how athlete's foot is spread to other individuals?

contact with spore

30. What example best describes the relationship between the tapeworm and its host?

parasitism

31. What is the vector for the pathogen that causes malaria?

mosquito

32. What do you call the infected animal that would most likely spread diseases such as rabies or Lyme disease?

vector

33. What antibiotic was developed from a fungus and has been used to cure many illnesses that could have led to epidemics?

penicillin

34. Match the below disease/disorder with the appropriate pathogen.

Letter		Disease	Pathogen
F	1.	Malaria	A. Bacteria
A	2.	Strep Throat	B. Virus
A	3.	Cholera	C. Parasite
C	4.	Tape Worm	D. Lifestyle/Diet
B	5.	Influenza	E. Genetics
D E	6.	Heart Disease	F. Protist

35. Label the pathogen for each:

AIDS	B
Typhoid Fever	A
Common Cold	B
Leprosy	A