

Lesson 1: Parasite Diversity

Pre/Post Lesson Evaluation

Student # _____

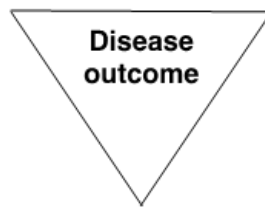
Pre or Post

1. How would you define a parasite?
2. What percentage of species are estimated to be parasites?
 - a. 10%
 - b. 25%
 - c. 50%
 - d. 90%
3. Which of the following is a macroparasite?
 - a. Tick
 - b. Bacteria
 - c. Virus
4. You discover a new species of parasite that only infects bald eagles. How would you classify this parasite that only infects one species?
5. The spread of disease through coughing is an example of _____ disease transmission
 - a. Direct
 - b. Indirect
 - c. Vector-borne

6. In the United States, the common cold occurs on regular, predictable intervals every year. The common cold is an:

- a. Endemic disease
- b. Epidemic disease

7. What are the three most important factors that influence an infectious disease (hint: two are biotic, one is abiotic). List them on corners of the infectious disease triangle below.



Lesson 1: Parasite Diversity

Pre/Post Lesson Evaluation- Answer Key

1. How would you define a parasite?

an organism that lives in or on another organism (its host) and benefits by acquiring nutrients at the host's expense

2. What percentage of species are estimated to be parasites?

a. 10%

b. 25%

c. 50%

d. 90%

3. Which of the following is a macroparasite?

a. Tick

b. Bacteria

c. Virus

4. You discover a new species of parasite that only infects bald eagles. What term would you use to describe this parasite that *only infects one species*?

This parasite is a specialist because it only infects one species.

5. The spread of disease through coughing is an example of _____ disease transmission

a. Direct

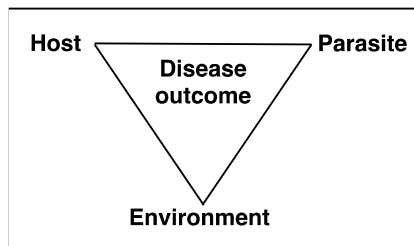
b. Indirect

c. Vector-borne

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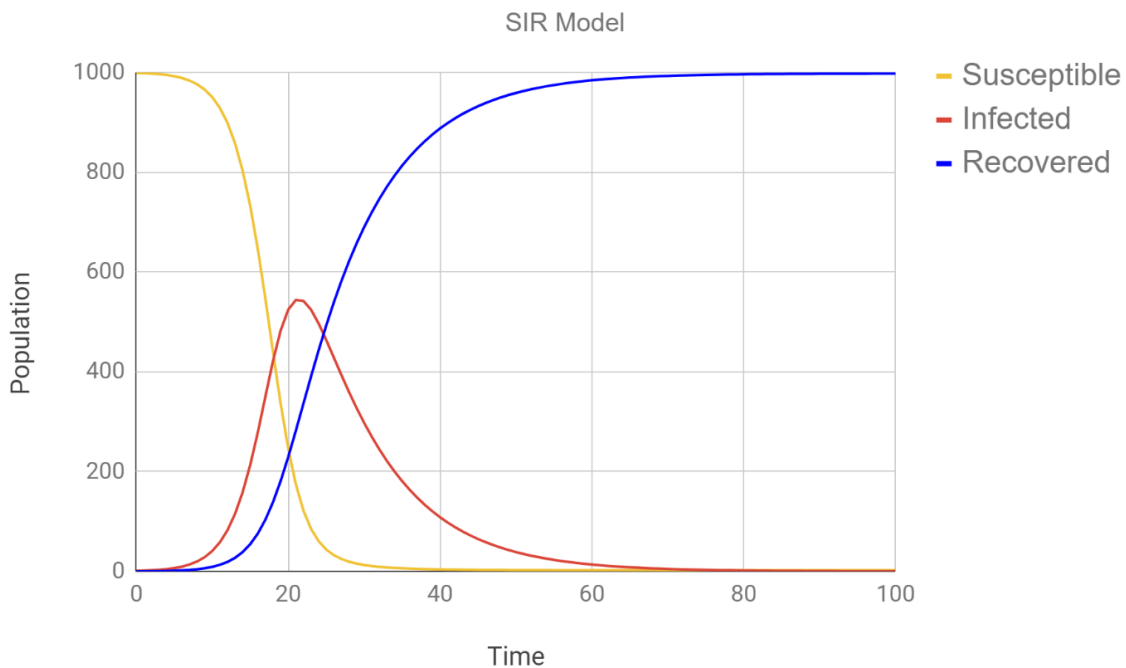
Lesson 2: Modeling Disease Transmission

Pre/Post-Lesson Evaluation

Student # _____
or **Post**

Pre

1. What do each of the three letters (S, I, and R) stand for in the infectious disease transmission model?
S-
I-
R-
2. What is one reason scientists might need to use mathematical models rather than experiments when studying the spread of human and wildlife diseases?
3. Based on the SIR model graph below, please list the magnitude of the epidemic and the duration of the epidemic. Additionally, how many individuals are immune at Time = 20?



4. What is the definition of transmission rate?
 - a. Percent of organisms that an organism interacts with
 - b. Rate of disease spread from infectious to susceptible individuals
 - c. Rate at which infected individuals recover from infection
 - d. Individuals in a population that are not infected with a parasite but can become infected
5. In relation to the SIR model, how does vaccination reduce disease transmission?
 - a. By reducing the number of total susceptible individuals and increasing the number of recovered individuals
 - b. By increasing the number of infectious individuals and decreasing the number of recovered individuals
 - c. By increasing the recovery rate of individuals
 - d. By decreasing the population size
6. Why do models typically contain simplifying assumptions?

Lesson 2: Modeling Disease Transmission

Pre/Post-Lesson Evaluation- Answer Key

1. What do each of the three letters (S, I, and R) stand for in the infectious disease transmission model?

S- Susceptible

I- Infected/Infectious

R- Recovered

2. What is one reason scientists might need to use mathematical models rather than experiments when studying the spread of human and wildlife diseases?

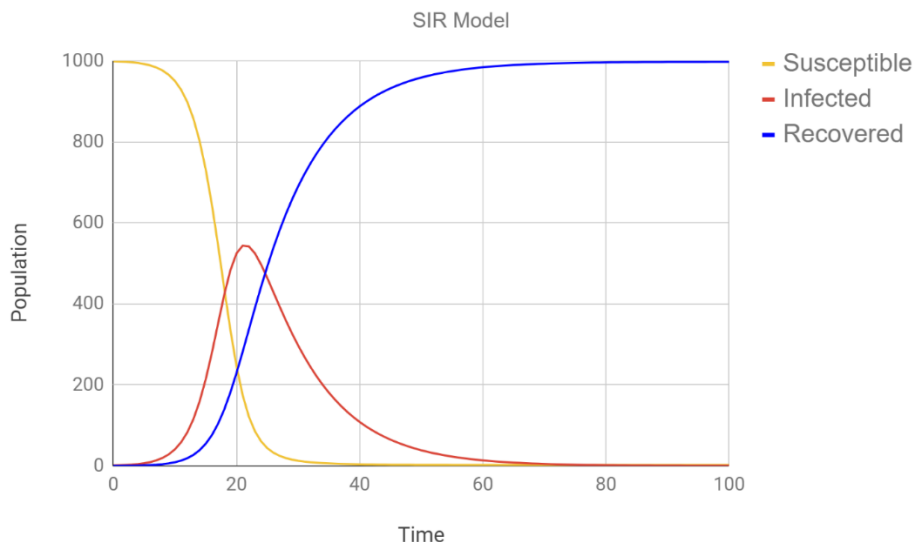
Answers may vary. Common responses include: It is unethical to infect humans with diseases to test disease spread; it is impossible to study disease spread without models because the populations are so large; Models allow scientists to conduct many "experiments" on disease spread very rapidly; Many diseases are dangerous and difficult to work with.

3. Based on the SIR model graph below, please list the magnitude of the epidemic and the duration of the epidemic. Additionally, how many individuals are immune at Time = 20?

Magnitude = between 500 and 600

Duration = Between 50 and 65 units of time

Number of individuals immune at time 20 = approximately 200



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 - d. Individuals in a population that are not infected with a parasite but can become infected
5. In relation to the SIR model, how does vaccination reduce disease transmission?
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 - f. By increasing the number of infectious individuals and decreasing the number of recovered individuals
 - g. By increasing the recovery rate of individuals
 - h. By decreasing the population size

6. Why do models typically contain simplifying assumptions?

To make complicated problems like disease spread easier to understand.

Lesson 3: Parasite Avoidance Behavior in Tadpoles

Pre/Post-Lesson evaluation

Student # _____

Pre or Post

1. Typically, an animal's first response to parasites is:
 - a. Behavioral avoidance
 - b. An immune response

2. The goal of behavioral avoidance of parasites is to:
 - a. Enhance the immune response of the host to parasites
 - b. Reduce parasite exposure and infection risk of the host
 - c. Increase the host's chance of finding a mate

3. An adaptive behavior is a behavior that:
 - a. Increases an animal's chance of being harmed
 - b. Has no positive or negative effect on an animal
 - c. Increases an animal's chance of survival and reproductive success

4. Cercariae are a free-swimming life stage of:
 - a. Trematodes
 - b. Nematodes
 - c. Leeches
 - d. Bacteria

5. The host, parasite, and _____ all interact to determine disease outcomes.

Lesson 3: Parasite Avoidance Behavior in Tadpoles

Pre/Post-Lesson evaluation- Answer Key

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 - c. Leeches
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5. The host, parasite, and environment all interact to determine disease outcomes.