Name: Date:

UNIT PERFORMANCE TASK

Analyzing a Disease Outbreak

Greenfield, a small town in south Texas, has seen a recent outbreak of sickness involving unexplained high fevers. All symptoms reported are shown in the Data Table. The town lacks the medical expertise and laboratory resources to properly diagnose the medical cause of the high fevers. Town residents need information about what is causing the outbreak, why the symptoms are occurring, and how further cases can be prevented. The only other thing that seems out of place in Greenfield is the large flea population. What information can you provide to the residents of Greenfield?

Use your Evidence Notebook to record your notes, statements, questions, and data.

1. DEFINE THE PROBLEM

With your team, write a statement outlining the problem you've been asked to solve. Record any questions you have on the problem and the information you need to solve it.

2. CONDUCT RESEARCH

With your team, investigate all of the information you've been given about the outbreak in Greenfield. What is the most likely disease causing the outbreak?

3. DEVELOP A MODEL

On your own, analyze the problem you've defined along with your research. Make a model that demonstrates how the disease is transmitted and how the body systems are working together to combat the infection. Your model should also show why the symptoms are occurring and how homeostasis is involved in the immune response.

4. IDENTIFY A SOLUTION

Provide a range of solutions for how the town can avoid further outbreaks of this disease.

5. COMMUNICATE

Present your findings to the town residents, explaining the most likely cause of the disease, why the symptoms are occurring in relation to the immune response and homeostasis, and your proposed solutions for preventing further outbreaks. Your presentation should include images and data to support your claims.

DATA TABLE: Clinical symptoms presented in the twenty-five undiagnosed high-fever cases, Greenfield, TX, 2016

Symptoms	Number of Affected Individuals
Fever (body temperature > 38.5 °C)	25
Discomfort	19
Headache	17
Muscle ache	16
Chills	16
Rash	11
Light sensitivity	7
Confusion	3

CHECK YOUR WORK

A complete presentation should include the following information:

- a clearly defined problem with supporting questions that are answered in the final presentation
- a model of disease transmission and immune response in humans
- a recommendation that explains how to solve the problem and uses evidence to support the solution
- images and data that further support your solution