

## Case Details

### Case Title:

A Friday in September

### Author(s):

Angela Wade, Renfroe Middle School  
Susan Sumrall, Renfroe Middle School  
Aimee Webb, Emory University  
Janel Chatraw, Emory University  
Molly Embree, Emory University

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### Grade Level(s):

Middle School

### Subject(s):

Life Science

### Summary:

While on a field trip for Ecology class, a group of students take a short cut that get them lost in the woods for over an hour. One of the students becomes ill, resulting in a hospital stay. As his friends learn about the disease that landed him in the hospital, they get the chance to better understand what is wrong with their friend by using his disease for their class project.

### Suggested Citation:

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### Learning Objectives:

1. Define genetic disorder.
2. Distinguish between infectious and noninfectious diseases.
3. Identify common infectious diseases, their symptoms, their pathogenic agent and some modes of transmission.
4. Identify how one acquires a noninfectious diseases (asthma, allergies, genetic disorders).
5. Identify organs and functions of the systems affected by common infectious diseases and noninfectious diseases
6. Identify common diseases and cultural practices of Nigeria
7. Explain what penicillin is and how it works.
8. Identify the organs and functions of the respiratory system and the explain the mechanisms of breathing
9. Identify the organs of the circulatory system and explain how they function.
10. Identify the role of blood, blood cells, and hemoglobin in transporting oxygen.
11. Discuss how the respiratory and circulatory system are interrelated to perform

- the task of oxygen transport.
12. Identify some current medical technologies that are used by hospitals to monitor patients, to perform diagnostic tests, and to administer treatments.
  13. Use a pedigree to predict future probabilities of disease.
  14. Understand and apply terms such as recessive, dominant, allele, trait, phenotype, carrier, pedigree, inheritance.
  15. Explain why and how sickle cell disease affects oxygen delivery and cause a sickle cell crisis.
  16. Explain how a person with sickle cell disease can take steps to prevent or reduce sickle cell crisis.
  17. Define genetic counseling and a genetic counselor. Determine what types of schooling must a person have to be a genetic counselor.

### **National/State Standards:**

#### *Georgia Performance Standards*

S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works. (NSES Content Standard A) a. Understand the importance of and keep honest, clear, and accurate records in science. b. Understand that hypotheses can be valuable, even if they turn out not to be completely accurate.

S7CS6. Students will communicate scientific ideas and activities clearly. (NSES Content Standard A)

S7CS7. Students will question scientific claims and arguments effectively. (NSES Content Standard A) a. Question claims based on vague attributions (such as "Leading doctors say...") or on statements made by people outside the area of their particular expertise. b. Identify the flaws of reasoning that are based on poorly designed research (i.e., facts intermingled with opinion, conclusions based on insufficient evidence). c. Question the value of arguments based on small samples of data, biased samples, or samples for which there was no control. d. Recognize that there may be more than one way to interpret a given set of findings.

S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems. (NSES Content Standard C)

S7L3. Students will recognize how biological traits are passed on to successive generations. (NSES Content Standard C) a. Explain the role of genes and chromosomes in the process of inheriting a specific trait.

S7L5. Students will examine the evolution of living organisms through inherited characteristics that promote survival of organisms and the survival of successive generations of their offspring. (NSES Content Standard C)