

Name _____

Introduction to the Scientific Method

Directions: Read the following scenario about a small town stricken with pneumonia. Then answer the questions that follow in complete sentences.

Many people in the small town of Holtsville are stricken with pneumonia. Most of those stricken with this particular strain of pneumonia recover in two to three weeks.

This strain of pneumonia is caused by a type of bacteria called *Streptococcus Pneumoniae*. It has been demonstrated that antibiotic "X" kills these bacteria in a test tube. Antibiotic "X" has also cured monkeys stricken with this pneumonia.

Researchers decided to test the new drug on some people in Holtsville. They hypothesized that the antibiotic would effectively cure pneumonia in humans. They deduced that if they gave patients antibiotic "X", the patients would recover more quickly than those who did not take the antibiotic.

The researchers prepared tablets that contained the antibiotic and a batch of tablets that did not contain the antibiotic. A tablet that does not contain any medication is called a **placebo**.

The researchers selected two groups of people who had just gotten sick with pneumonia. Twenty-five people in group A were given the tablet with antibiotic "X". Twenty-five people in group B were given the placebo.

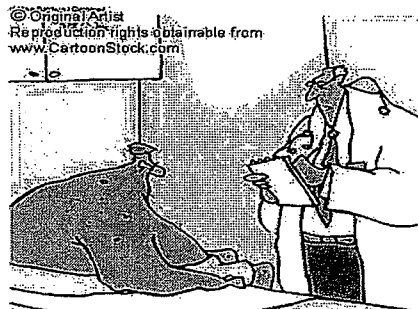
Twenty people in group A recovered in two days. The other five people took the full two to three weeks to recover (normal recovery time). One person in group B recovered in two days. The rest took two to three weeks to recover.

Questions:

1. Name two facts that were known before the start of the experiment.

2. State the researchers' hypothesis.

4. Identify the independent and dependent variables.
5. Describe the experimental group and the control group. How are they different?
6. What are the data of this experiment?
7. What analysis do you think the researchers made of the data?
8. What conclusion do you think the researchers made?
9. How could you check the validity or reliability of this experiment?



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