

Skills Worksheet

Science Skills**SEQUENCING/RELATING INFORMATION**

Scientists at a major university became concerned by recent reports of severe insomnia in a number of people with previously normal sleep patterns. These scientists decided to undertake a scientific investigation to try to determine the cause of this behavior. This scientific investigation had five stages. The paragraphs below, labeled *A–E*, describe the stages of this investigation, but the stages are not listed in order. In other words, the sequence of the stages is incorrect.

Sequence the stages properly by listing the letters of the paragraphs below in the correct order in the chart on the next page. Decide which step in a scientific investigation each paragraph describes, choosing from the list in the box below. In the space provided in the chart, write the step next to the number.

- conducting a controlled experiment and analyzing the results
- doing a preliminary study, analyzing the results, and drawing a preliminary conclusion
- forming a hypothesis
- making observations
- stating a final conclusion

- A. The scientists gathered 35 volunteers who agreed to eat 3 meals a day while living at the university research center for 30 days. These volunteers had no previous history of insomnia. They were aware that the meals would be made up of some foods containing the fat substitute, and they had been informed of the potential risks involved. Within 14 days, 17 of the volunteers were having trouble sleeping at night, and within 21 days, the entire group was showing signs of insomnia. The scientists thought it was likely that the fat substitute was causing people in the study to have insomnia.
- B. The fat substitute contained a chemical not typically found in the human diet. The scientists thought that this chemical caused the insomnia in people eating the fat substitute.
- C. The scientists gathered 80 volunteers who agreed to eat 3 meals a day while living at the university research center for 60 days. These volunteers had no previous history of insomnia. They were aware that the meals would be made up of some foods containing the fat substitute, and they had been informed of

Science Skills *continued*

the potential risks involved. The scientists divided the volunteers into two groups. Group A consisted of 40 volunteers who were fed meals with foods containing the fat substitute. Group B consisted of 40 volunteers who were fed meals that contained no foods with the fat substitute. At the end of 60 days, the 40 volunteers in Group A were suffering from insomnia; the 40 volunteers in Group B were sleeping normally. Moreover, within 7 days of discontinuing the diet containing the fat substitute, the sleep patterns of the members of Group A returned to normal.

- D. The scientists agreed that they had strong evidence that the chemical in the fat substitute was causing insomnia in people who ate foods containing this substitute.
- E. The scientists began to track the personal habits of 127 people who had recently reported the onset of insomnia, hoping to find a clue to the cause of this sleep disorder. Information about previous and current sleep patterns, exercise routines, stress at home and work, eating habits, and other criteria was gathered over a 6-month period. The only common element in the lives of all of the subjects was the consumption of foods containing a new fat substitute.

Correct Order	Step in the Scientific Process
1.	
2.	
3.	
4.	
5.	