

Scenario 1: As ice cream sales increase, the rate shark attacks increases sharply. Therefore, increase in ice cream sales causes shark attacks since consuming ice cream makes people tastier to sharks.

Scenario 2: There is strong correlation between the number of cavities in elementary school children and their vocabulary size. Therefore, the more words children know, the higher number of cavities they will have. Or if students consume more sugar, they will gain a larger vocabulary.

Scenario 3: A 2003 study identified Tucson and Phoenix as the first and third cities with the highest occurrence of asthma sufferers. Therefore, living in Tucson and Phoenix will cause residence to suffer from asthma.

Scenario 4: Over the course of several weeks the needles from the pine trees along the Wombat River fell into the water. Shortly thereafter, many dead fish washed up on the riverbanks. When the EPA investigated, the owners of the Wombat River Chemical Company claimed that it was obvious that the pine needles had killed the fish.

Scenario 5: Nations that add fluoride to their water have a higher cancer rate than those that don't.

SCENARIO KEY

Scenario 1: As ice cream sales increase, the rate shark attacks increases sharply. Therefore, increase in ice cream sales causes shark attacks since consuming ice cream makes people tastier to sharks.

Explanation: The aforementioned example fails to recognize the importance of time in relationship to ice cream sales. Ice cream is sold during the summer months at a much greater rate, and it is during the summer months that people are more likely to engage in activities involving water, such as swimming. The increased shark attacks are simply caused by more exposure to water based activities, not ice cream.

Scenario 2: There is strong correlation exists between the number of cavities in elementary school children and their vocabulary size. Therefore, the more words children know, the higher number of cavities they will have. Or if students consume more sugar, they will gain a larger vocabulary.

Explanation: No one advocates eating more candy to increase knowledge. These variables are both tied with age. As students get older their vocabulary increases, and as they get older the number of cavities they have will increase.

Scenario 3: A 2003 study identified Tucson and Phoenix as the first and third cities with the highest occurrence of asthma sufferers. Therefore, living in Tucson and Phoenix will cause residence to suffer from asthma.

Explanation: Why do the two major cities in Arizona seem to be the worst places for asthmatics? The answer is, they aren't. This is a relationship of cause vs. result. People who have asthma are more likely to move to Arizona due to its warm, dry desert air in an effort to lessen their asthmatic symptoms. Living in Tucson and Phoenix doesn't cause asthma. Instead having asthma causes people to want to live in Tucson and Phoenix.

Scenario 4: Over the course of several weeks the needles from the pine trees along the Wombat River fell into the water. Shortly thereafter, many dead fish washed up on the riverbanks. When the EPA investigated, the owners of the Wombat River Chemical Company claimed that it was obvious that the pine needles had killed the fish.

Explanation: This false conclusion is made when a common cause is ignored. A conclusion is made without considering the possibility that a third factor is causing both the pine trees to lose their needles and the fish to die. Many local environmentalists later claimed that it was chemical plant's toxic wastes being released into the river that caused both the trees and the fish to die. Thus the pine needles had no real effect on the fish.

Scenario 5: Nations that add fluoride to their water have a higher cancer rate than those that don't.

Explanation: This is an example of two correlations being somewhat related in some way but that one correlation does not necessarily cause the other. In this scenario nations that add fluoride to their water are generally wealthier and more health-conscious than nations who don't add fluoride. Since these nations are wealthier and more health conscious, they have populations that live longer. Thus some of these citizens live long enough to develop cancer, which is, to a large extent, a disease of old age.