Correlation ≠ Causation

Correlations are useful because they can indicate a predictive relationship. For example, an electrical utility may produce less power on a mild day based on the correlation between electricity demand and weather. Correlations can also suggest possible causal relationships; however, a simple correlation between two variables is not sufficient to conclude there is a causal relationship.

Example 1: The more firemen fighting a fire, the bigger the fire is going to be.

Is there a direct or indirect correlation?

Is it fair to conclude there is a causal relationship?

Example 2: As ice cream sales increase, the rate of drowning deaths increases sharply.

Is there a direct or indirect correlation?

Is it fair to conclude there is a causal relationship?

Example 3: Since the 1950s, both the atmospheric CO2 level and crime levels have increased sharply.

Is there a direct or indirect correlation?

Is it fair to conclude there is a causal relationship?

How can one best determine if there is a causal relationship between two variables?
1. Select two of the headlines on the Correlation or Causation page. Identify whether those headlines make causal or correlational claims.

   Headline #1: __________________________________________________________

   Is the headline:  Causal  Correlational  (Circle one)

   Headline #2: __________________________________________________________

   Is the headline:  Causal  Correlational  (Circle one)

2. Click the link of each headline you selected and read the accompanying article.

   Does the research described in the article support the type of claim (correlational or causal) made in the headline?

   Headline #1: In a paragraph, explain why you answered "yes" or "no."

   Headline #2: In a paragraph, explain why you answered "yes" or "no."