Scientific Inquiry

_____: any condition that could change in an investigation.

Sometimes you can manipulate the _____ in an experiment, other times its impossible. So the type of experiment you do depends on the situation

Here are three main types of experiment

_____ *experiment*: an experiment where you can control the variables

Example:_____?
What is the variable in this question? Can you control it?

A controlled experiment has a few conditions to be aware of.

_____: this is the variable that the experimenter changes

_____: this is the variable that changes in

response to the change in the _____.

In our example, the independent variable is the _____ while the dependent variable is the _____. You changed

_____ and as a result the runner's _____ did or did not change.

In a controlled experiment, you also need what we call a _____. A _____ is a set-up that acts as a standard of reference. Again using our running shoe example, you

would time the runner using a different brand of shoe, then after they rested test again with the Nike shoe.
By testing with another shoe first (your control) you have something to compare the time the runner got with a Nike shoe.

_____*:* an investigation where you want to determine the relationship between two variables where a controlled experiment is not possible.

Example:_____?

Why can't you run a controlled experiment on this?

In order to make sure the relationship is really there, you need a large _____.

This type of study has three types of outcomes.

A _____ *correlation* shows a _____ relationship; as one variable increases, so does the other. For our example,

as speed _____ so do the _____

A _____ *correlation* shows an _____ relationship;

as one variable _____, the other _____.

For our example as speed _____ the number of

accidents would _____ (PS that doesn't happen!)

Of course, there could also be no correlation. This means that there is no real pattern.

The best way to see these relationships is to look at a _____ of your results

_____: used to describe and understand natural phenomenon.

Example: _____

Sciences such as _____, paleontology and _____ rely heavily on this type of experiment. Questions like “Where do the birds go in the winter?” or “Is there water on Saturn?”

are only answered with _____.

A lot of the time a _____is not determined until they have done many observations. This is how Darwin came up with his theory of evolution.