

Vocabulary: Comparative Investigations

- Comparative investigation – an investigation that involves collecting data to make a comparison.
 - A *hypothesis* identifies an *independent variable* and a *dependent variable*.
 - A *fair test* is used to determine how the dependent variable responds to the independent variable.
- Dependent variable – a variable that responds to an independent variable.
 - A dependent variable is also called a “responding variable.”
 - The dependent variable is the variable that is measured by the investigator.
 - For example, in an investigation on the relationship between the time of year and the noon shadow length, the noon shadow length is the dependent variable because it depends on the time of year.
- Fair test – a test in which only one independent variable is changed.
 - In a fair test, all variables should be the same except for the one independent variable that is being investigated.
 - For example, in a fair test of the relationship between the time of year and noon shadow length, the time of day, object or person whose shadow is measured, and location should be the same each day the shadow is measured.
- Hypothesis – a tentative explanation that can be tested by doing experiments.
 - The plural of *hypothesis* is *hypotheses*.
 - Hypotheses are often written as if/then statements. For example “If fertilizer is added to the soil, then the plants will grow more quickly.”
- Independent variable – a variable that is manipulated, or changed, by the investigator.
 - An independent variable is also called a “manipulated variable.”
 - For example, in an investigation on the relationship between the time of year and the noon shadow length, the time of year is the independent variable because it changes throughout the experiment.
- Latitude – angular distance north or south of the equator.
 - The latitude of the equator is 0°.
 - The latitude of the North Pole is 90° N.
 - The latitude of the South Pole is 90° S.

- Summer solstice – the first day of summer.
 - The summer solstice is the longest day of the year. Outside of the tropics, it is also the day when the noon Sun is highest in the sky.
 - In the Northern Hemisphere, the summer solstice occurs on or near June 21.
 - In the Southern Hemisphere, the summer solstice occurs on or near December 21.

- Winter solstice – the first day of winter.
 - The winter solstice is the shortest day of the year. It is also the day when the noon Sun is lowest in the sky.
 - In the Northern Hemisphere, the winter solstice occurs on or near December 21.
 - In the Southern Hemisphere, the winter solstice occurs on or near June 21.