**SOME BASIC LOGIC**

**Alexandria Tutorials**

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**Inference**--is a process where one idea is shown to be true on the basis of one or more other ideas. For example, if you see dark clouds in the sky and rain falling from those clouds, you conclude or **infer** that the ground will be wet.

**Argument**--is a group of statements or ideas. The last idea is supposed to be inferred from the first idea or ideas. The first statements are stated to provide support for the last or concluding statement.

**Premise**--is the statement or idea that provides support for the conclusion. For example, the idea that rain is falling from the sky is support for the idea that the ground is wet.

**Conclusion**--is the statement or idea that is based on the premise or premises. For example, the conclusion that the ground is wet is based on the premise that rain is falling.

**Truth and Validity**--Truth has to do with the statements and ideas in an argument. Validity has to do with the relationship of the statements to each other. For example, the following arguments demonstrate the meaning of truth and validity.

1. All whales are mammals.

All mammals have lungs.

Therefore all whales have lungs.

2. All spiders have ten legs.

All ten-legged creatures have wings.

Therefore all spiders have wings.

3. If I owned all the gold in Fort Knox I would be wealthy.

I do not own all the gold in Fort Knox.

Therefore I am not wealthy.

4. All mammals have wings.

All whales have wings.

Therefore, all whales are mammals.

**Modus Ponens**--(ponere: to affirm) a valid argument form in which the first statement (antecedent) is affirmed. **If P then Q. P. Therefore, Q.**

**Fallacy of Affirming the Consequent:** an invalid argument form in which the second statement (consequent) is affirmed or stated as being true. **If P then Q. Q. Therefore P.**

**Modus Tollens**--(tollere: to deny) a valid argument form in which the second statement (the consequent) is denied. **If P then Q. Not Q. Therefore not P.**

**Fallacy of Denying the Antecedent:** an invalid argument form in which the first statement (the antecedent) is denied or stated as being false. **If P then Q. Not P. Therefore not Q.**