

1. What is scientific knowledge?

- a. Knowledge** – (Webster's Dictionary, 1989) 1. acquaintance with facts truths, or principles, as from study or investigation; general erudition: *a little knowledge of many things.* 2. familiarity or conversance, as with a particular subject, branch of learning, etc.: *A knowledge of physics was necessary for the job.* 3. acquaintance or familiarity gained by sight, experience, or report: *a knowledge of human nature.* 4. fact or state of knowing; perception of fact or truth; clear and certain mental apprehension. 5. awareness, as of a fact or circumstance: *She was pleased by their knowledge of her good fortune.* 6. that which is or may be known; information: *To the best of my knowledge, she never arrived.* 7. the body of truths or facts accumulated by mankind in the course of time: *Man's knowledge of the origin of the universe is largely theoretical.* 8. the sum of what is known: *Knowledge of the true situation is limited.*
- b. Science** – (Webster's Dictionary, 1989) 1. a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of general laws: *the mathematical sciences.* 2. systematic knowledge of the physical or material world. 3. systematized knowledge in general. 4. knowledge, as of facts or principles; knowledge gained by systematic study.
- c. Science** – (Dictionary) -- The observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena.
- d. Scientific Method** -- (Webster's Dictionary, 1989) a method of research in which a problem is identified, relevant data are gathered, a hypothesis is formulated from these data, and the hypothesis is empirically tested.
- e. Scientific Method** – (Encyclopedia Britannica, 1967) -- 1) Careful observation usually involving quantitative measurement (special instruments are usually required); 2) Elaboration of a *hypothesis* by inductive reasoning (a guess based upon observation); 3) Conducting experiments based upon the hypothesis; 4) If the *predictions* of the hypothesis are borne out by the experiments, the hypothesis may be elevated to the status of *theory*; 5) The theory with other theories may evolve into a *general law* that explains all phenomena within a given field of study and offers a basis for the prediction of all phenomenalistic changes.